

The NEW ATTRACTIVE

CONTAINING
of the Magnes or
vertues, of a new dis-
pertie, concerning
Needle, touched there-
plaine of the Horizon.

Now first found out by Robert Nor-
man, Hydrographer.

HEEREVNTO ARE ANNEXED CER-
taine necessarie rules for the Art of Navi-
gation, by the same R.N.

newly corrected and amended by M.W.B. 1585.



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TO THE RIGHT WOR- shipfull, Master VVilliam Bor-

rough, Esquire, Comptroller of her Maiesties

Nauie: Robert Norman wisheth increase

of Worship in perfect felicitie.



Archimedes after long search made to finde out the fraudulent mixture of king Hierons golden crowne, could not by anie meanes attaine the secret thereof, till at length by chaunce as he was bathing himselfe, he obserued that still as his bodie entered into the water, it forced the same to rise and runne ouer the vessell, wherevpon the matter of the crowne comming to his remembrance, and applying the manner of the water to his present purpose, he was forthwith moued with such exceeding ioy, that he leapt sodainlie out of the water, and forgetting himselfe to be naked, came crying to the king his master, I haue found, I haue found: So I (right Worshipfull) (although in other respects and points of learning & knowledge, I wil not presume to compare with Archimedes, who is many waies incomperable, nor with anie other learned Mathematician, being my selfe an vnlearned Mechanician) by occasion of my profession, making sundrie experiments of the Magnes stone, found at length amongst many other effects, this strange and new propertie of Declining of the Needle, which forgetting, or rather neglecting mine owne nakednesse and want of furniture to set forth the matter, I haue heere in simple sort proposed, and published to the view of the world. Wherein I consider, though the occasions were diuerse, our cases are not vnlike. Pythagoras likewise that great Philosopher, for the singular ioy conceiued of the inuention of that excellent Theoreme of Rectangle Triangles, made a solempne sacrifice, offering therein an Oxe vnto the Muses, as testifieth Vitruuius the author also of the former example. So that we see these men and sun-

A.ij.

drie

Handwritten notes in the right margin:
To the right worshipfull Master William Borrough
Esquire Comptroller of her Maiesties
Nauie
Robert Norman wisheth increase
of worship in perfect felicitie
Archimedes
Pythagoras
Vitruuius
Theoreme of Rectangle Triangles
Theoreme of Declining of the Needle
Theoreme of the Magnes stone
Theoreme of the Oxe
Theoreme of the Muses
Theoreme of the Rectangle Triangles
Theoreme of the Declining of the Needle
Theoreme of the Magnes stone
Theoreme of the Oxe
Theoreme of the Muses

The Epistle Dedicatorie.

drie others that are mentioned in authors, being carried & overcome with the incredible delight conceived of their owne deuises and inuentions, though they follow partly the peculiar contentation of their priuate fancies, yet they seeme chiefly to respect either the glory of God, or the furtherance of some publike commoditie. Whose good example in this behalfe I will endeaour to follow, when to reach their rare gifts otherwise, is rather to be wished, then hoped for. And seeing it hath pleased God to make mee the instrument to open this noble secret, that his name might be glorified, and the commoditie of my Country procured thereby, I thought it my dutie to aduenture my credit, and make my name the Obiect of slanderous and carping tongues, rather then such a secret should be concealed, and the vse thereof vnknown. How beneficiall the Art and exercise of Nauigation is to this Realme, there is no man so simple but sees, by meanes whereof wee being secluded & diuided from the rest of the world, are notwithstanding as it wer Citizens of the world, walking through euerie corner, and round about the same, and enioying all the commodities of the world. How necessarie the perfect knowledge of the Needle or Compasse is, to the perfection of the Art of Nauigation, your selfe who haue long time verie industriously trauailed therein, & thereby in it, and other Sea causes excell others, can best iudge. To attaine vnto this perfection, and to frame, as it were, a Theorike, with Hypotheses, and rules for the saluing of the apparant irregularitie of the Variation (if it be a thing possible or within the compasse of mans capacitie) it must doubtlesse be done by due obseruation of this new Declining propertie, with the Variation caused by the admirable efficacie of the Magnes stone. Wherefore to further the noble studie of Nauigation and Hydrographie, and to giue occasion to industrious & skilfull trauailers by sea and by land, to make diligent obseruation of these effects in sundrie places, whereby some generall conclusion may be inferred, I haue heere set downe whatsoever I could finde by exact triall, and

per-

The Epistle Dedicatorie.

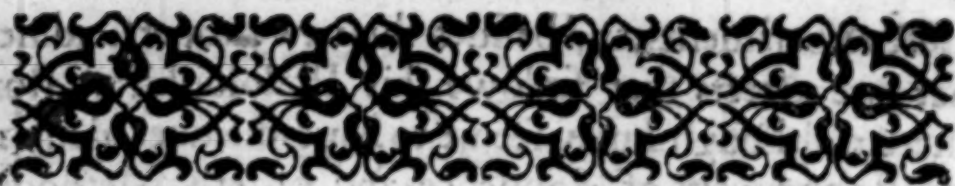
perfect experiments, and besides this new propertie, diuerse other rare effects that followe this Philosophicall stone. Wherein although I may seeme to haue discovered my nakednesse, and want of eloquence and orderly Methode to vtter my conceits withall, I trust the reader will either of his curtesie take all things for good that is well meant, or of his grauitie not regarding the wordes but the matter, dissemble my faults, and accept of my paines. And whereas amongst diuerse learned and expert men in the Mathematicall sciences, to whom I haue imparted this secret, I haue first of all and chiefly from time to time shewed the manner of it to your Worship, which first gaue occasion that I fell into the consideration thereof, and through whose encouragement I entred into farther examination of the matter, which otherwise I had neglected: If my trauaile heerein take such effect, that others be benefited or pleased therby, I haue my desire, and they are to be thankful vnto you for the same, for I must needs ascribe the occasion to your good counsaile. To you therefore as to the most worthie and best acquainted with the cause, I present the first sight of this my rude and simple draught, which I trust, according to your accustomed curtesie and friendly affection towards me, you will take in as good part, as it proceedes from a heartie good will towards you, whom I praye

God long to preserue with all increase of
Worship to his good pleasure.

Your Worships most humble,
Robert Norman.

A. 33.

TO



TO THE READER.



Any and diuerse auncient authoꝛs, Philo-
sophers, & others, haue wꝛitten of the Mag-
nes oꝛ Loadstone, as also of his substance,
vertue, & operation, & therby setting down
their opinions and iudgementes, haue left
the same as infallible truthe for them that
should succede. And as I may not, noꝛ meane not heerein
willinglie to condemne the learned oꝛ auncient wꝛiters,
that haue with great diligence laboured to discouer the
secrets of Nature in sundrie things, with their operations
and causes, yet I meane God willing, without deroga-
ting from them, oꝛ exalting my selfe, to set downe a late
experimented truth found in this stone, contrarie to the
opinions of all them that haue heeretofore wꝛitten there-
of. Wherein I meane not to vse barelie, tedious coniec-
tures oꝛ imaginations, but bꝛiefly as I may, to passe it
ouer, founding my arguments onelie vppon experience,
reason, & demonstration, which are the grounds of Artes.
And albeit, it may be sayd by the learned in the Mathe-
maticalls, as hath ben already wꝛitten by some, that this
is no question oꝛ matter for a Mechanitian oꝛ Mariner to
meddle with, no more then is the finding of y longitude,
foꝛ that it must be handled exquisitelie by Geometricall
demonstration, and Arithmeticall Calculation, in which
artes they would haue all Mechanicians and Sea-men to
be ignorant, oꝛ at least insufficientlie furnished to per-
forme such a matter, alleadging against them the Latine
Prouerbe of Apelles, Ne futor ultra crepidam. But I doe
verilie thinke, that notwithstanding the learned in those
sciences, beeing in their studies amongst their booke, can
una-

To the Reader.

Imagine great matters, and set downe their farre fetcht conceits, in faire shew, and with plausible wordes, wishing that all Mechanicians, were such as for want of utterance should be forced to deliuer vnto them their knowledge and conceits, that they might flourish vpon them, & applie them at their pleasures: yet there are in this land diuerse Mechanicians, that in their seuerall faculties and professions, haue the vse of those arts at their fingers ends, and can applie them to their seuerall purposes, as effectually, and more readilie, then those that would most condemne the. For albeit they haue not the vse of the Greeke and Latine tongues, to search the varietie of authoꝝ in those artes, yet haue they in English for Geometrie, Euclides Elements, with absolute demonstrations: and for Arithmetike, Records woꝝkes, both his first and second part: and diuerse others, both in English, & in other vulgar languages, that haue also wꝛitten of them, which booke are sufficient to y^e industrious Mechanician, to make him perfect and readie in those sciences, but especially to apply the same to the art oꝝ facultie which he chieflie professeth. And therefore I would wish the learned to vse modestie in publishing their conceits, & not disdainfullie to condemne men that will search out the secrets of their artes and professions, and publish the same to the behoofe & vse of others, no more then they would that others shuld iudge of them, for promising much and performing little oꝝ nothing at al. Aristotle sayth, that euerie man is best to be beleued in his owne professed Art and Science. Now (curteous reader) I am to request thee to accept of this my discourse, wherein I haue taken some paines (as the traiaile it selfe may testifie) and bene at some charge, for the more carefull and orderlie handling of such matters as are necessarily incident to this present treatise: All which I haue bene content to doe, that the woꝝke (though it be not big, yet effectually) by the common vse thereof, may yeeld profit accordingly, to them specially that are of capacitie to comprehend

To the Reader.

prehend this new revealed secret. To conclude, the chiefest
e onely marke whereat I lay leuell, was the benefitting of
my Countrie-men, in whom I wish continuall increase
of knowledge and cunning, as in all other commendable
professions, sochieftie in those that are most necessarie and
profitable. Thus bequeathing my travaile hèrein to thy
discreete construction, and wishing thy furtherance in
this most necessarie and profitable knowledge, I
leaueth thee to the direction of Gods holie
Spirit. Fare-well.

R. N.



The Magnes or Load-

stones Challenge.



Give place ye glittering sparkes,
ye glimmering Diamonds bright,
Ye Rubies red, and Saphires braue,
wherein ye most delight.

In briefe, ye stones inricht,
and burnisht all with golde,
Set forth in Lapidaries shops,
for Iewells to be solde.

Giue place, giue place I saie,
your beautie, gleame, and glee,
Is all the vertue for the which,
accepted so you bee.

Magnes, the Loadstone I,
your painted sheaths desie,
Without my helpe in Indian seas,
the best of you might lie.

I guide the Pilats course,
his helping hand I am,
The Mariner delights in me,
so doth the Merchant man.

My vertue lies vnknownen,
my secrets hidden are,
By me the Court and Common weale,
are pleased verie farre.

No ship could saile on Seas,
her course to runne aright,
Nor Compasse shew the readie waie,
were Magnes not of might,

B.

Blush

Blush then, and blemish all,
bequeath to me that's due,
Your seates in golde, your price in plate,
which Jewellers doo reue.

Its I, its I alone,
whom you vsurpe vpon,
Magnes my name, the Loadstone cald,
the prince of stones alone.

If this you can denie,
then seeme to make replie,
And let the painefull Sea-man iudge,
the which of vs doth lie.

The Mariners iudgement.

THE Loadstone is the stone,
the onelic stone alone,
Deseruing praise aboue the rest,
whose vertues are vnknowne.

The Merchants verdict.

THE Diamōds bright, the Saphires braue
are Stones that beare the name,
But flatter not, and tell the troth,
Magnes deserues the fame.

The newv Attractive.

The first Chapter.

Of the Magnes or Loadstone, where they are found, and of their colours, weight, and vertue in drawing yron, or steels & of other properties of the same stone.



THE Magnes or Loadstone is founde in diuerse partes of the woꝛld, and most commonlie in yꝛon Mines, and although it bee ponderous and weightie, yet it is not founde to bee of the yꝛon Cōwe, neither cōtaineth in it any mettall of it selfe, but hath a certaine affinitie vnto yꝛon or steele. It was called Magnes, because the first finder thereof was so named, who (as Plinie writeth) was an Herd-man in East India.

This stone (as writeth Cardinal Cusan) hath substance, vertue, and operation. His vertue is conserued & nourished of his substance: & of this vertue proceedeth diuerse strange effects and operations, seruing to many good purposes, as speciallie in the art of Nauigation, without which there could haue been no discoveries by sea, nor the parts of the woꝛld made knowen & frequented, as now they are. And therefore the vertue of this Stone of all others, maye bee accounted the most precious.

Of these are diuerse sortes different each from other, as well in goodnesse, as in colour, weight, and force, but not in propertie (although manie haue iudged the variation of the Steele, to be according to the distaunce of the Mine where the stone was byed, to the place where he is vsed.)

The best
loadstone

The first and best sort of these stones come out of East India, from the coast of China, and Bengalia, and is of the colour of yron, or sanguine colour: these stones are verie massiue & waightie, & wil draw or lift by the iust weight of it selfe in yron or Steele (if the stone errede not a pound weight.) And these are of the finest sort, and are sold commonly for their proper weight in siluer in the East India where they grow, because the best and finest are verie rare to be found. For it is commonly a sole stone, lying by himselfe in the earth, and no shell or peece of another.

Next the
best.

There is another sort of a reddish colour found in Arabia and the red Sea, growing broad and flat, much like to a Tilestone or Slate: this is not so weightie as those of China, but it is verie nere as good, and the vertue continueth long on the Compasse or Needle that is touched with it.

There is likewise of these stones in Leuant, in the Ile of Elba, hard by a towne in the same Iland called Porto Feraro, from whence our Mariners dailie bring of them, and are called there Calamita Preta, that is to saie, The blacke Magnes, because there is another sort that is white and light, like vnto a peece of dry Fullers claie, and is called Calamita Blanca.

This Calamita Blanca is founde alwaies with the other, sticking fast in the out side thereof like claie. And this white is forbidden to be vsed in that countrie, because euill women there, doe applie it to destroye conception, whereof this stone is a great enimie. Other thinges are noted of this white Calamita for obtaining of wanton purposes, which I thinke not credible, and therefore will omit it. These blacke stones of Elba are mingled with white vaines, they are of no great force, nor their vertue of long continuance.

Also there are of these stones in high Almanie, that are full of holes like a hurnie combe, & lighter then the other, but yet verie good, and these are of yron colour.

Another

Another sort there is in Norwaie, in the yron Mines, as in Longsounde, and other places, their colour is blacke, The worst mixed or as it were interlarded with graie, these are of the smallest force of anie that are found.

I haue seene also in the Mines of Carauaca in Spaine of a graie colour, but of no great force: these are commonly brought by horse downe to Siuill and Caliz to bee solde, and often times to Valentia, Alicante, and Lisbone.

All these stones are different one from another, as wel in force as in colour and weight: yet all of one operation in the Needle, shewing one point Attractive, as I haue proued my selfe by three sundrie sortes of them, which I haue: and all drawing yron to them. Yet the Philosopher Auerroes writeth, that the Magnes draweth not yron vnto it, but the yron of his naturall inclination moueth to the Stone.

And though this position may seeme to carrie some truth with it, by the bare view of the sight, when the yron is lighter then the Stone: yet contrariwise you shall finde, that the Stone will moue to the yron, if the Stone bee good, and the yron of greater weight then the Stone (so that the weight of the Stone exceede not his Attractive strength.)

Nevertheless, we may not thereby take awaie the vitall or liuelie spirit from the Stone, and attribute it vnto the yron: for in so doing we should doe Nature greate wrong. For it is apparant, that the yron hath no Attractive vertue, nor power of it selfe, vntill it hath receiued it of the Stone. But yron hauing a certaine affinitie, or naturall qualitie agreeable to the Stone, doth aptly and freely receiue his vertue, and as subiect, suffereth his vitall spirit of the Stone to impresse, and rest quietly in his massiue and solide bodie, which when it hath receiued by touching the Stone, it is indued with the verie same propertie and operation in all respectes (though not in so greate force) as the Stone it selfe.

The vital
and natu-
rall spirite
and ope-
ration of
the Load-
stone.

For as the Stone hath power to shew the Attractive point, so hath the touched Iron. As the Stone hath two principall points, so hath the Iron. And likewise, as the Stone hath power to drawe Iron to it, so will the Iron so touched drawe another Iron to it, and impart all these vertues to another Iron in qualitie, though not in quantitie: and thus in all respects it containeth in it, the verie proprietie of the Stone.

Paracelsus writing of the augmenting of the strength of the Magnes Stone saith, that if this Stone be laide in the fire, untill it bee almost redde hot, and then taken out and quenched in the Oile of Crocus Martis, it will so augment and multiplie his force, that it will pull a naile out of a wall. But I suppose he meant not that the naile should be fast, for then it were a miraculous matter.

Others haue written, that in those partes, where the Magnes groweth in the sea, it is of such force, that if anie Shippes that haue Iron in them passe by, or ouer them, that they are presentlie either staied, or drawen downe to the bottome by reason of y^e Iron. Not these onelie, but many other Fables haue bene written by those of auncient time, that haue as it were set downe their owne imaginations for vndoubted truthes, and this most of all in Geographie, and Hydrographie, or Nauigation. Therefore I wish experience to bee the leader of Writers in those artes, and reason their rule in setting it downe, that the followers bee not led by them into errours, as often times hath bene seene.

True it is, that God is mightie and meruailous in all his woorkes: yet he doth not allowe vs to saie more then truth of them. And truelie, his power is as greatlie shewed in the Magnes, as in anie Stone that he hath created: and who so shall goe about curiously to seeke out the efficient cause of his properties, I suppose the longer hee seeketh, the more hee shall meruaile, and yet neuer the neerer his purpose.

The vertue of this Stone is distributue, as many other vertues are, much comparable vnto Muske, that hauing a swete sauour or sinell it selfe, imparteth the same to another thing, as to a paire of Gloues, and those Gloues giue out sauour, and perfume a whole chest of clothes: Euen so the yron that hath receiued this vertue of the Stone, will extend, and giue the same to another, and that yron to another, and so to many.

And in this point the Stone is meruailous, that notwithstanding you touch ten thousand yrons or nailes with him, euerie one of them carrying a waie as much vertue as wil lift vp another his like (so they excede not the weight of a five pennie naile) yet the Stone it selfe will be nothing diminished of his strength, but continue of one force.

If I should saie here, that by the Attractive strength of a small Magnes of two or three pound weight, I could lift vp, or cause to hang by the vertue thereof, a thousand pound of yron at one instant, peraduenture you would be doubtfull of the successe. Neuerthelesse by experience in all things, wherein consisteth truth and reason, of necessitie reason must yield, when truth is present. And therefore because you shall not remaine doubtfull herein, thus you may doe it, and onely make pꝛofe by two or three nailes, if you will: for the same successe that you haue in them, you shall haue in all the rest.

Take a common wood naile, & touch the head of it with the North parte of the Magnes or Loadstone, then take the same naile and beate it with a peece of woode lightly into some post or timber vpwordes, so as the head may hang downewordes, (but not with yron, because the yron will take a waie some part of the vertue from the naile :) this done, take another like naile, and touch the head thereof with the South part of the Stone, and then if you put the head of it to the head of the first naile, it wil hang fast by it a whole yere or more. And after this manner you may, if you will take pains, hang a hundred tun of yron with the

Irons to
hang one
by ano-
ther by
vertue of
this stone

the vertue of this little stone, and yet the stone nothing diminished of his force. But it is necessarie in p^{ro}ofe of this matter, that you haue a verie good Stone.

Furthermoze, concerning the other properties of this stone, if you put it in a drie dish, and set it to swimme in a tub of water, it will turne the dish about, and the North part of the stone, after many swaruings to and fro, will rest, and directlie shew the line of Variation, or imagined Attractive point.

Also, if you hang this stone by a thred, that it may easilie moue, it will shew the like effect as on the water. And if you haue two stones, putting the two South partes of them together, the one will flie and turne awaie from the other, and likewise of the North points.

A speciall
note.

And farther ye shall note as a speciall point, that the North point of the stone touching a Needle, or the wipers of a Compasse, will make the same point touched to shew the South: and contrariwise, being touched with the South point, will make the same to shew the North. So as alwaies that part of the stone that answereth to the North of the needle, is properlie the South part of y^e stone.

The second Chapter.

Of the diuerse opinions of those that haue written of the Attractive point, and where they haue imagined it to be.



THE subtil properties and hid secrets of Nature in the Magnes, as also in diuerse other things, hath so troubled the wits of the searchers thereof, that alwaies when they came to the bps^hot, wanting experience, & thereby reasons finger to shew them a direct marke, they wer constrained to seek or imagine a marke, where indeede none at all was, and this shooting

Shooting as it were in ſaire, euerie man where he thought beſt, they haue all ſhot wide, and none touched the marke. The marke I meane here, is the point Attractive, or rather, as ſhall be ſayde hereafter moze at large, the point Reſpectiue.

This point, auncientlie called the Attractive point, hath bene by ſome imagined to be in the moving ſpheres diſtant from the poles of the world: which opinion Martin Curtes in his booke of Nauigation refuting, ſaith, that if it were ſo, then the ſame point being carried about the pole by their violent motion, woulde cauſe the Needle or Compaſſe touched with the vertue of the Stone, to varie daillie in euerie place, according to the diurnal motion of the ſame ſphere. But in confuting that erronious opinion, he hath (as it appeareth) fallen into as great an error himſelfe: imagining the point Attractive to be beyond the poles of the worlde, without all the mouable heauens. Which point (ſaith he) hath power by Attraction to draw yron to it, that is touched with the Loadſtone. This error I referre to be diſcuſſed in the ſixt Chapter.

Others haue thought this point to be in the earth, nere the North pole, imagining in that part to be ſome greate rocks of the Loadſtone, & that by their Attraction the compaſſe or needle is cauſed to Reſpect or ſhew that part.

This opinion of all the reſt is eaſieſt to be confuted by daillie experience: for if the compaſſe or needle were drawen towardeſ the North part, by anie Attraction of the Magnes Stones in thoſe partes imagined, why then ſhould not the compaſſe or Needle ſhew the ſame effect in moving towardeſ the Iland of Elba in the Leuant ſeas, where are great quantities of theſe Stones: and yet the ſhippes ſailing within a mile of this Iland, yea, and into Porto Ferard a Towne of the ſame Ile, within a quarter of a mile of a huge Rocke of theſe Stones, the Compaſſe or needle is not ſound anie thing to be drawen or changed, nor the Attraction of this huge rocke to extend ſo farre as one
C.
quarter

quarter of a mile. And as I haue said by this, so may I say by diuerse other places where the Loadstones are found, in Cliftes and Mines néere to the sea side, as in Norwaie and other places.

Pedro de Medina in his booke of Nauigation is of the opinion of Marin Curtes as touching the Attractive point, but he doth not allowe of the variation of the compasse or needle, but saith, that if the compasse or needle shew not the pole, the fault is in placing the wiers on the flie, & not in anie propertie it hath to varie.

These opinions be diuerse, but the chiefest cause why they haue gone so farre wide from the Attractive point, as I haue aboue sayd, was because they wanted reasons finger to shew them towarde the direct marke. By this reasons finger, I meane a certaine Declining propertie vnder the Horizon, latelie found in the Needle, which I will entreate off at large.

The third Chapter.

By what meanes the rare and straunge Declining of the Needle, from the plaine of the Horizon was first found.



Having made many and diuerse Compasses, and vsing alwaies to finish and end them, before I touched the Needle, I found continually that after I had touched the yrons with the Stone, that presentlie the North point thereof would bend or Decline downwards vnder the Horizon in some quantitie: inso much that to the flie of the Compasse, which before was made equall, I was still constrained to put some small peece of ware in the South part therof, to counterpoise this Declining, and to make it equall againe.

Which effect hauing many times passed my handes, without

without any great regard thereunto, as ignorant of any such propertie in the Stone, and not before having heard nor read of any such matter: It chanced at length that there came to my hands an Instrument to be made, with a Needle of six inches long, which Needle after I had polished, cut of a iust length, & made it to stand leuell vpon the pin, so that nothing rested but onelie the touching of it with the Stone: when I had touched the same, presently the North part thereof Declined downe, in such sort, that being constrained to cut a waie some of that part, to make it equall againe, in the end I cut it too short, and so spoiled the Needle wherein I had taken so much paines.

Whereby being stroken into some cholar, I applyed my selfe to seeke further into this effect, and making certaine learned and expert men, my friendes, acquainted in this matter, they aduised me to frame some Instrument, to make some exact trial, how much the Needle touched with the Stone would Decline, or what greatest Angle it would make with the plaine of the Horizon. Wherevpon I made diligent proofes, the manner whereof is shewed in the Chapter following.

The fourth Chapter.

How to finde the greatest Declining of the Needle vnder the Horizon.



Take a small Needle of Steele toler of sixe or sixe inches long, the smaller and the finer mettall, the better: and in the middle thereof (crosse y same) by the best meanes you can, fixe as it were a small Axeltree of yron or brasse, of an inch long, or thereabout, and make the ends thereof verie sharpe wherevpon the Needle may hang leuell, and plaie at his pleasure.

Then prouide a round plaine Instrument like an Astro-

lobe, to bee divided exactly into 160 partes, whose diameter must bee the length of the Needle, or thereabout, and the same Instrument to bee placed vppon a foote of convenient height, with a plumme line to set it perpendicular.

Then in the Centre of the same Instrument, place a peece of Glasse hollowed, and against the same Centre vppon some plate of Brasle that may bee fired vpon the foote of the Instrument, fit another peece of Glasse, in such sort that the sharpe endes of the Arcltre being bozne in these two Glasses, the Needle maye play freelie at his pleasure, according to the standing of the Instrument.

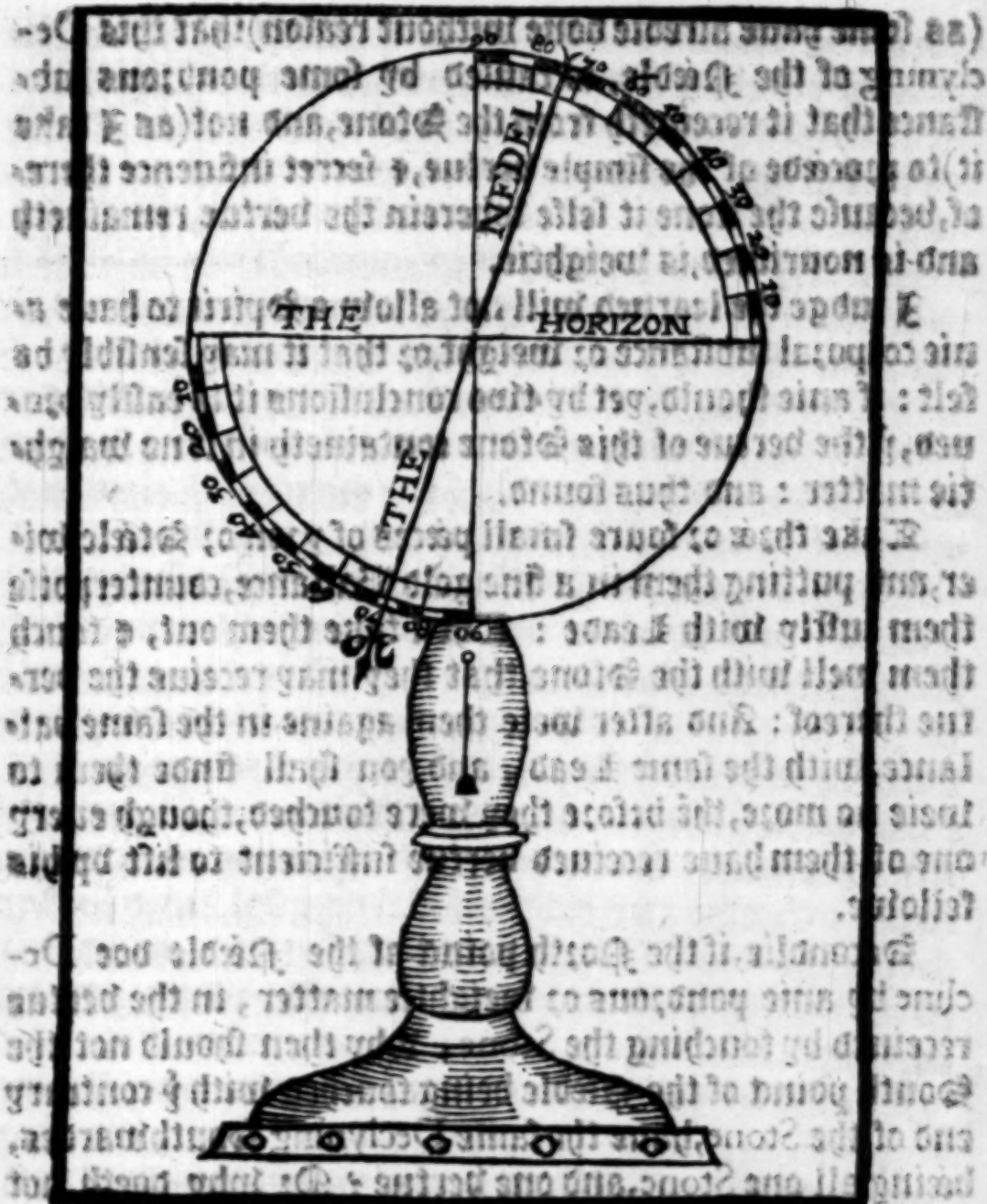
And the Needle must be so perfected, that it may hang vpon his Arcltre both endes leuell with the Horizon, or being turned may stand and remaine at anie place that it shall bee set: which being done, touch the sayd Needle with the Magnes stone, and set the Instrument perpendicular by the plumme line, and turne the edge of the Instrument South and North, so as the needle may stande ouelie according to the Variation of the place: which Variation the Needle of his owne proprietie woulde shewe, were it not that hee is constrained to the contrarie by the Arcltre.

Then shall you see the Declination of the North point of the touched Needle, which for this Citie of London, I finde by exact obseruations to bee about 71. degrees. 50. mi. The forme of the Instrument heere described, with the manner of the declination, I haue heere placed that it may be the easier conceiued.



The

about the year 1600, the declination was about 71 degrees 50 minutes. The whole may be easily understood by the following diagram.



John Doe

John Doe

1512

1512

The fifth Chapter.

That in the vertue of the Magnes or Loadstone, is no pondrous or weightie matter, to cause anie such Declining in the Needle.

BEcause the opinions of men are diuerse, and the arguments of many against reason, peradventure there are some will saie, that I am decelued even in the ground & chiefeſt point of this my purpose, alledging

C.ij.

(as

(as some haue alreddie done without reason) that this Declining of the Needle, is caused by some pondzous substance that it receiveth from the Stone, and not (as I take it) to procede of the simple vertue, & secret influence thereof, because the Stone it selfe wherein the vertue remaineth and is nourished, is weightie.

I iudge the learned will not allow a Spirit to haue anie corporal substance or weight, or that it may sensibly be felt: if anie should, yet by two conclusions it is easily proved, y^e the vertue of this Stone containeth in it no weightie matter: and thus found.

Take three or foure small peeces of yron or Steele wire, and putting them in a fine gold Ballance, counterpoise them iustly with Leade: Then take them out, & touch them well with the Stone, that they may receiue the vertue thereof: And after weie them againe in the same ballance, with the same Lead, and you shall finde them to weie no more, thē befoze they were touched, though every one of them haue receiued vertue sufficient to lift vp his fellowe.

Secondlie, if the North point of the Needle doe Decline by anie pondzous or weightie matter, in the vertue receiued by touching the Stone, why then should not the South point of the Needle being touched with y^e contrary end of the Stone, haue the same Declining Southwardes, beeing all one Stone, and one vertue? Or why doeth not this supposed heavier end, fall perpendicularly to the Centre, as by reason it should, and not couet a certaine scituation beside it, ballancing it selfe vp and downe, till it haue found the same? These argumentes may aunswere this matter. For touch the Needle with what part of the Stone you list, that end of the Needle that sheweth the North, will alwayes Decline.

The sixt Chapter.

A confutation of the common receiued opinion of the point Attractive.



Seeing it is manifest that there is a Declining in the Needle, and that the same is not caused by anie ponderous or weightie matter in the vertue received from the Stone; it may be demanded, by what meanes this Declining or Elevating hapneth & in which of the two points consisteth the action or cause thereof.

Peradventure you will saie (as others have imagined) that it is in the South point of the Needle, elevated by the Attractive vertue of some point of the Heauen that waie. Perchance you will yeld it rather to be in the North point of the Needle, which by some Attractive point in the Earth, or in the Heauens, beyond the Earth that waie, is drawen downe and caused to Decline, and it Declining, of necessitie the other South point opposite must needes be lifted vp.

Your reason towards the earth carrieth some probability, but if I proue that there be no Attractive, or drawing propertie in neither of those two partes, then is the Attractive point lost, and falselie called the point Attractive, as shall bee proued. But because there is a certaine point, that the Needle alwaies Respecteth or sheweth, being void and without anie Attractive propertie, in my iudgement this point ought rather to be called the point Respectiue.

No point
attractive

Point Re-
spectiue.

And further, if it may be proued, that there is no Attractive or drawing propertie in that point, the power & action in that point condemned, then of necessitie the power and propertie, without anie externall cause, remaineth onelie in the Stone, and after in the Needle being touched with it, hauing the same power & propertie in it, that the Stone hath in euerie respect.

Now to proue no Attractive point neither beneath in the earth, nor heauens Northwardes, nor aboue in the heauens Southwardes, you shall take a peece of Iron or Steele

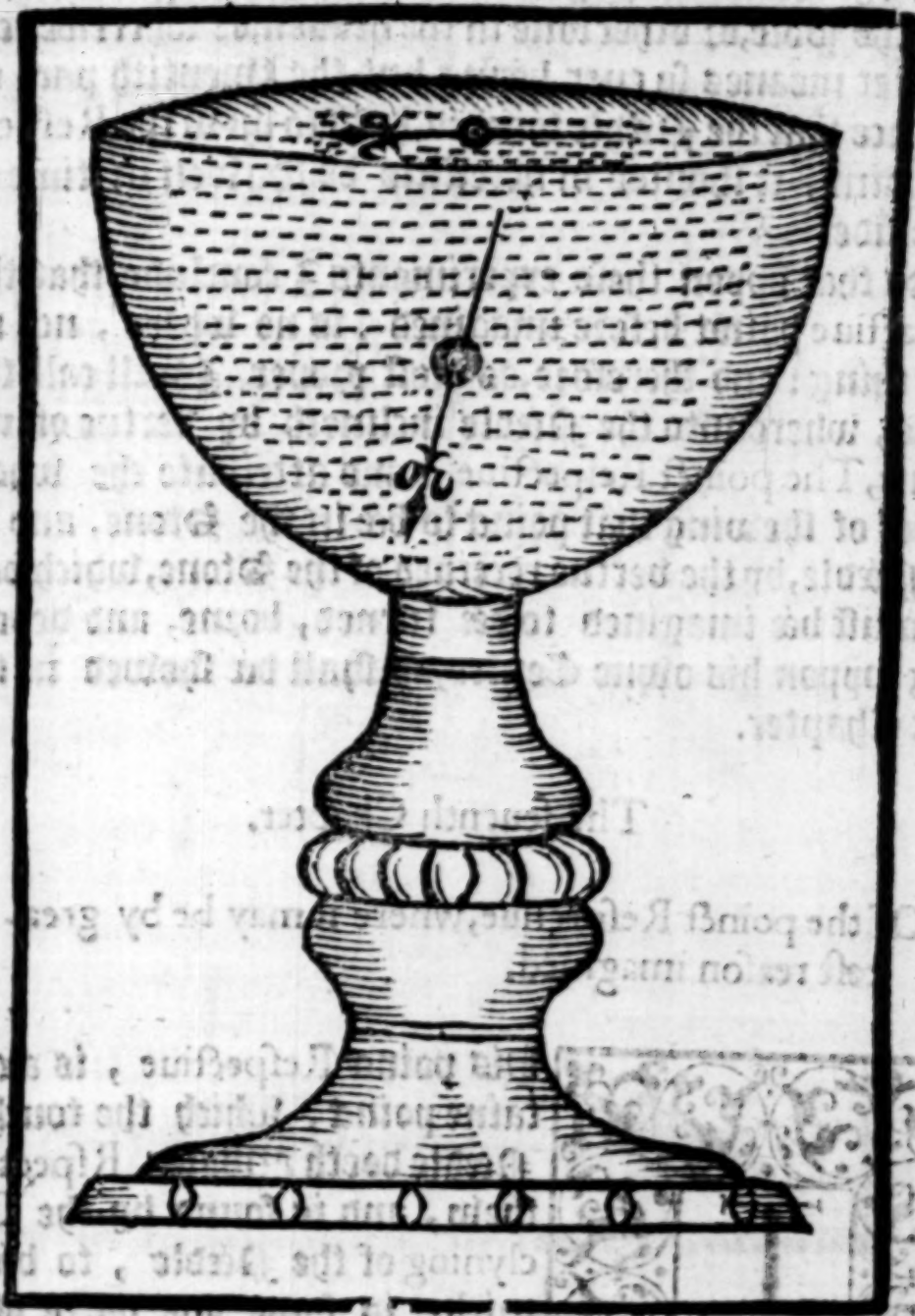
Steele wter of two inches long or more, and thrust it into a peece of close Cozke, as bigge as you thinke may sufficiently beare the wter on the water, so as the same Cozke rest in the middle of the wter.

Then you shall take a deepe glasse, bole, cuppe, or other vessell, and fill it with faire water, setting it in some place where it may rest quiet and out of the winde. This done, cut the Cozke circumspectlie by little and little, untill the wter with the Cozke be so fitted, that it may remaine vnder the superficies of the water two or thre inches, both endes of the wter lying lonell with the superficies of the water, without ascending or descending, lyke to the beame of a paire of ballance being equallie poised at both endes.

Then take out the same wter without moving the Cozke, and touch it with the Stone, the one end with the South of the Stone, and the other end with the North, and then set it againe in the water, and you shall see it presently turne it selfe vpon his owne Centre, shewing the aforesayd Declining propertie, without descending to the bottome, as by reason it should, if there were anie Attraction downwards, the lower part of the water being nearer that point, then the superficies thereof.

And as this may proue no Attraction or drawing downwards: in like manner the Cozke being so made, that it may linke verie slowlie to the bottome, and then taken out & touched with the Stone, and put in againe downe to the bottome with your finger, if anie Attractive drawing were vpwordes, it woulde ascend, and come vp to the superficies of the water, being nearer to that point then the bottome. But I finde by diligent and exact triall, that it hath no such effect: as in the figure following is demonstrated.

Again,



Againe, if you doe fit your wier with Cozke, that after it is touched with the Stone, it will swim leuell in the superficies of the water, you shall see it turne to shew the true Variation, and leauing the same in the middle of the superficies of the water, so long as you list, you shall finde that it will not bee drawen from his place, neither to the one side, nor the other: whereas if there were anie such Attractive point as hath bene imagined, either in the

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earth

earth by vertue of huge Rockes of the Magnes Stone neere the Pole, or otherwise in the heauen, or wheresoever, by what meanes so ever, being but the twentieth part of the force that the Needle touched, hath to shew the Respective point, it shoulde of necessitie be drawn in time to some side.

So that vppon these experiments I conclude, that the Attractive point before imagined, is no where, nor no such thing: and therefore, as most proper, I will call the point, wherevnto the Needle inclineth by vertue of the Stone, The point Respective, and attribute the whole power of shewing that point to be in the Stone, and in the Needle, by the vertue received of the Stone, which vertue must be imagined to be turned, borne, and depending vppon his owne Centre, as shall be shewed in the next Chapter.

The seuenth Chapter.

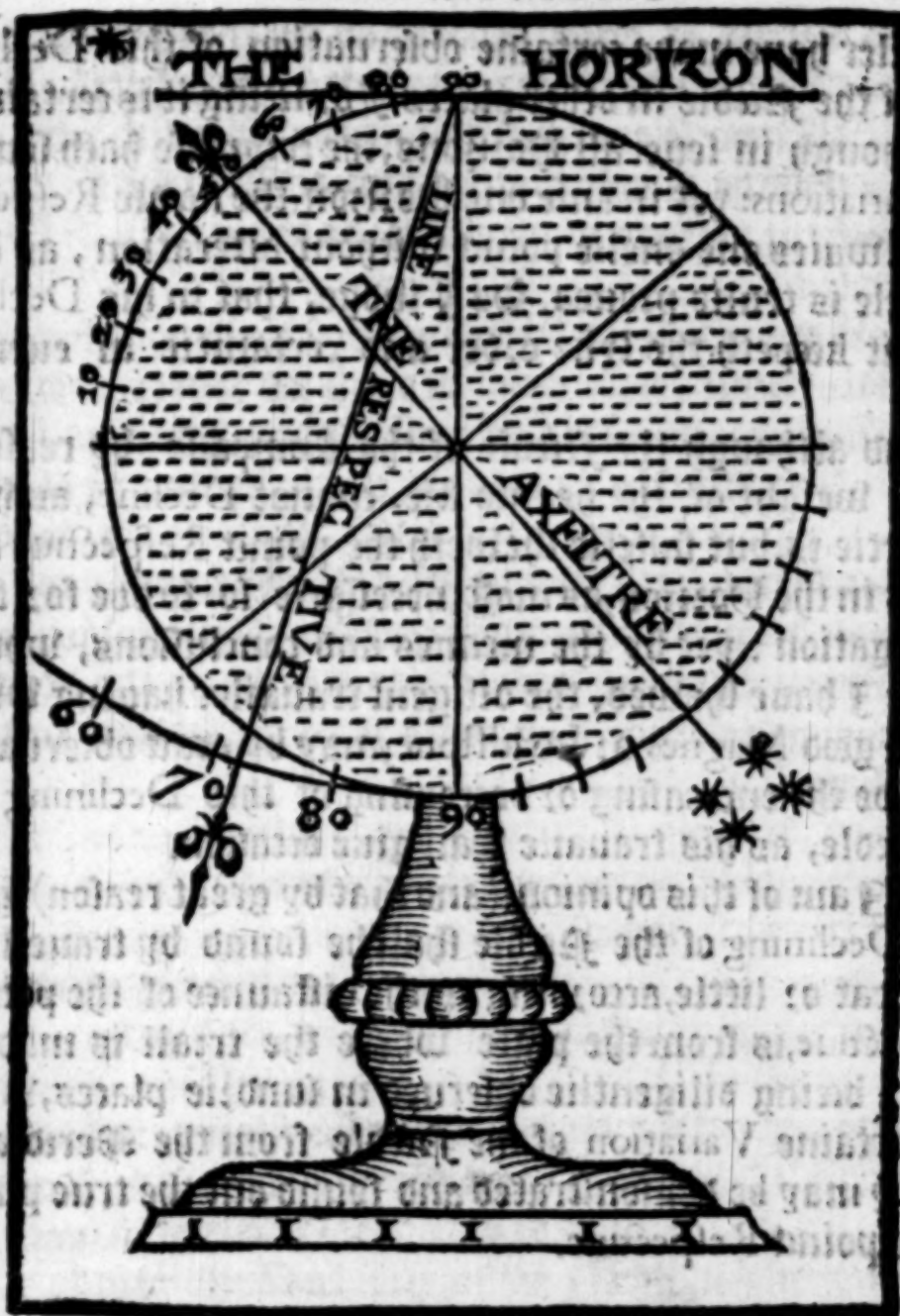
Of the point Respective, where it may be by greatest reason imagined.



following representeth.

This point Respective, is a certaine point, which the touched Needle doeth alwaies Respect or shew, and is found by the Declining of the Needle, to be a prick in some one parte of a straight line, Declining in this place or Latitude of London vnder the Horizon 71. degrees, and 50. Minutes, as this figure fol-

This



This streight line must be imagined to pꝛocēde from the Centre of the Needle, into the Globe of the earth, extending & going directly forth both waies infinitlie. But in what part of this line the point Respective is, it is not by this bare line alone to be answered, no moze then it is possible by one bare angle to measure or knowe the distance of anie place assigned.

And so, the finding or certaine assigning of þ true place of this point Respective, we must leane untill the expert

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traveller have made certaine obseruation of this Declining of the Needle in other places. For seeing it is certaine that though in severall Horizons, the compasse hath severall Variations: yet in anie one Horizon, the needle Respecteth alwaies one onelie point without alteration, as by traualle is trulie proued. So I iudge, that in his Declining, it keepeth the lyke order and certaintie in euerie place.

And although the Needle of the Compasse, by reason of the weight of the heauie flie, cannot Decline, as his propertie is, but falselie sheweth the point Respectue alwaies in the Horizon, as most necessarie so to doe for the Nauigation: yet by the meanes and conclusions, which before I haue shewed, the diligent traveller hauing with him a good Magnes or Loadstone, may by exact obseruation finde the encreasing or decreasing of this Declining of the needle, as his traualle shall giue occasion.

For I am of this opinion, (and that by great reason) that this Declining of the Needle shall be found by trauell to be great or little, according as the distaunce of the point Respectue, is from the place where the triall is made: which being diligentlie obserued in sundrie places, with the certaine Variation of the Needle from the Meridian, therby may be demonstrated and found out the true place of the point Respectue.

The eight Chapter.

Certaine proofes that the power and action is wholie and freelic in the Stone, to shew this point Respectue: and in the Needle, by vertue & power receiued of the Stone: and not forced or constrained by anie Attraction in heaven or earth.



It is most manifest in all the workes of Nature, or creatures that **G D D** hath made, that whatsoever qualitie, proper-
tie, or vertue is found in them, by crea-
tion, that is to be holden for their owne.
And he that shall, by imagination or con-
iecture, go about to take these their properties from them,
and attribute the same to anie other subiect, whereunto
they appertaine not, I saie that man offendeth God much,
for not believing his power to be sufficient in his cre-
atures.

I will not offer to dispute with the Logicians in so ma-
ny points as here they might seeme to ouer-reach me, in
naturall causes. But that this Stone hath wholie & fullie
in himselfe, power, action, propertie, & vertue of his owne
appetite, to shew, and to cause y^e Needle to shew the point
Respectiue, without anie Attractive qualitie, or externall
cause in Rockes of the Magnes Stone, or by Attraction in
the heauens, or else where whatsoever, it is alreadie suffi-
cientlie proued.

Notwithstanding, if those proofes may not content, I
will at anie time required herein, satisfie the doubtfull by
manifest experiments. And therefore where no other cause
can be probable annexed vnto this Stone, the power and
action of necessitie is proued in it selfe.

And by the Declining of the Needle, is also proued, that
the point Respectiue is rather in the earth then in the hea-
uens, as some haue imagined: and the greatest reason why
they so thought, as I iudge, was because they neuer were
acquainted with this Declining in the needle, which doubt-
lesse if Martin Curies had knowen, he woulde not haue
iudged the Attractive point to haue ben in the heauens, or
without them, but rather in the earth.

Now peradventure you will aske me how this Stone
hath his power, and how it is ingendered: I am no more
able to satisfie you herein, then if you shuld aske me how

and by what meanes the celestially spheres are moued: but that God in his omnipotent prouidence hath appointed it so to be: which may serue for a general answer, to all such curious searchers of the secret workes of God in his creatures. As though his word alone were not a sufficient decree and lawe to all his workes: but binding them to second causes, as a thing of necessitie.

These curious searchers out of the secrets of Nature, further then is requisite that man should know for his necessarie vse, I may compare to Esdras, and wish them to reade ouer his fourth booke, and there they shal see how he was answered at Gods hands by his Angell, for his curious questions asked and demaunded.

Now therefore, as I haue before declared, that diuerse haue whetted their wits, yea, & dulled them, as I haue mine, and yet in the end haue bene constrained to flie to the corner stone, I meane God, who (to conclude) hath giuen vertue and power to this Stone, proper in it selfe, to shew one certaine point, by his owne nature and appetite, and not subiect to anie other accident in heauen, nor in earth, but frelie by his owne proper vertue receiued at his mightie hands in creation: and by the same vertue the Needle is turned vpon his owne Centre, I meane the Centre of his Circular and innisible vertue, pearcing all things, and staied by nothing, bee it wall, wood, glasse, or anie thing whatsoeuer.

And surely I am of opinion, that if this vertue could by anie meanes be made visible to the eie of man, it would be found in a Sphericall forme. extending round about the Stone in great compasse, and the dead bodie of the Stone in the midst thereof, whose Centre is the Centre of his aforesaid vertue. And this I haue partly proued and made visible to be seene in some manner, and God sparing mee life, I will hercin make further experience, and that not curiously, but in the feare of God, as nere as he shal giue me grace, and meane to annexe the same vnto, a booke of
 Pauiga,

Navigation, which I have had long in hand.

The ninth Chapter.

Of the Variation of the Needle, from the pole or Axel tree of the earth, and how it is to be vnderstood.

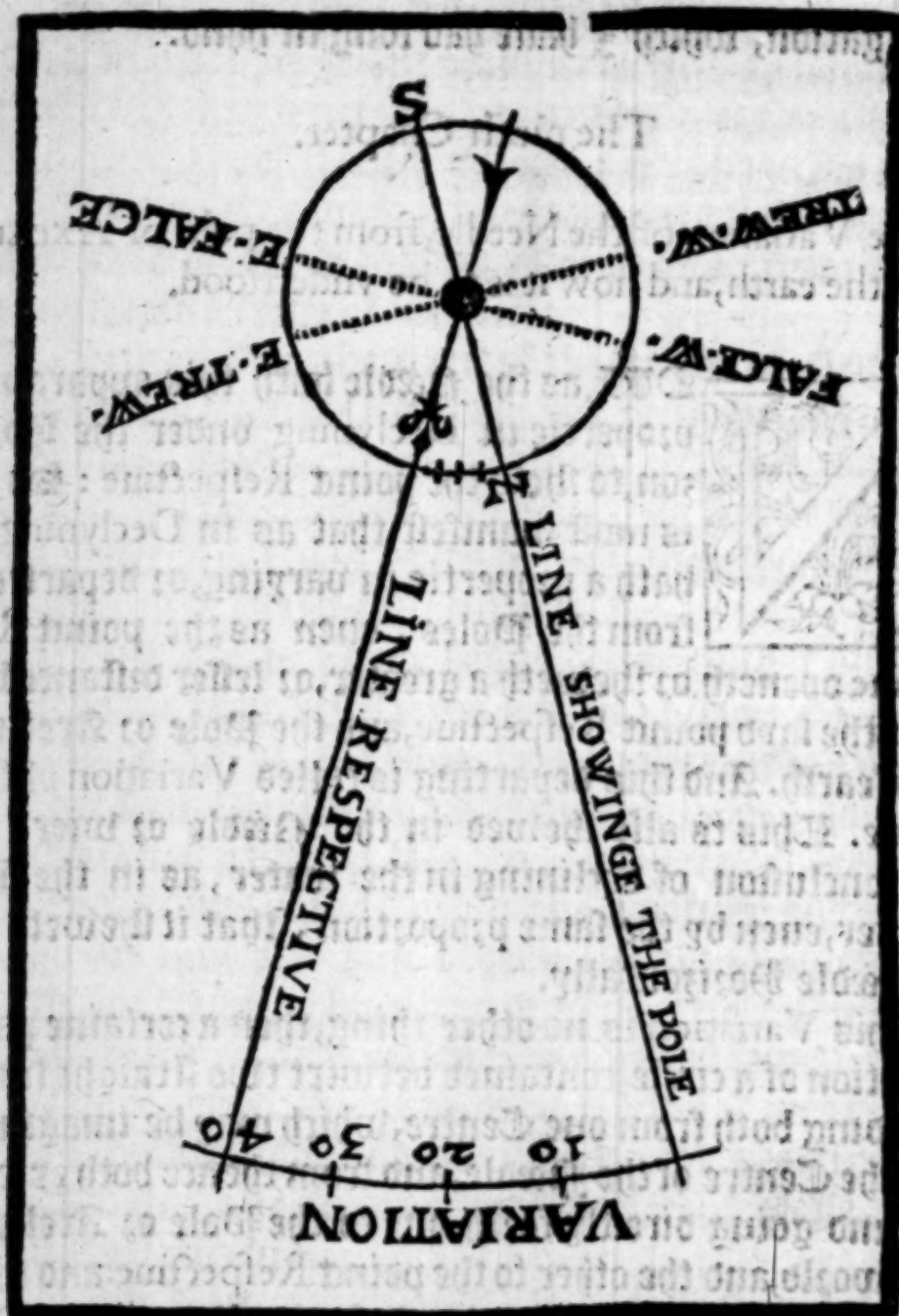


NOW, as the Needle hath this apparaunt propertie in Declining vnder the Horizon, to shew the point Respective: So it is most manifest, that as in Declining it hath a propertie in varying, or departing from the Poles, even as the point Respective openeth, or sheweth a greater, or lesser distance betwixt the sayd point Respective, and the Pole or Axel tree of the earth. And this departing is called Variation of the Needle. This is also shewed in the Needle or wier, in that conclusion of declining in the water, as in the first Chapter, even by the same proportion, that it sheweth in the Needle Horizontally.

This Variation is no other thing, then a certaine part or portion of a circle, contained betwixt two straight lines proceeding both from one Centre, which may be imagined to be the Centre of the Needle, and from thence both extending and going directly forth, one to the Pole or Axel tree of the world, and the other to the point Respective: and this part of circle contained betwixt these two lines in the Horizon, is sayd to be Variation.

And further here is to be noted, that alwayes these two lines haue two right lines, cutting them directly in the Centre of the Needle. The one of them crossing the Meridian at right angles in the Centre of y^e Needle, is the true East and West of the world. And the other crossing the line Respective at right angles, is the false East and West that the varying Needle or Compasse sheweth: all which is shewed by this present figure following.

This



This Variation is iudged by diuerse traualers to be by equall proportion, but herein they are much deceived, and therefore it appeareth that notwithstanding their trauaile, they have more followed their bookes then experience in that matter. True it is, that Martin Curtes both allowe it to be by proportion, but it is a most false and erronious rule. For there is neither proportion nor uniformitie in it, but in some places swift and sudden, and in some places slowe.

It is said to be proportionall or uniforme, when in the encreasing or decreasing of a degree of Variation, is found one certaine number of leagues or miles, going, encreasing, or decreasing in one Paralell or latitude, by like equall proportion, and that if the Variation be doubled, going by one Paralell, so shall the leagues or miles also. But this is not found to be so.

For in going from Sillic to Newfoundland, which is not 600. leagues, it is found that the Needle doeth varie more in 200. Leagues, when you come nere that Countrie, then it doth in 400. Leagues of your first waie. And also going to Meta Incognita, it varyeth more in $\frac{1}{2}$ part of the last of the waie, the in $\frac{1}{4}$ of the first; and in those partes it is found to bee sodaine. Further it is found betwene the North cape and Vaigatz verie straunge, in recoiling and coming backe againe to the Westwardes of the Pole, before it hath fullie accomplished two pointes of Variation in the Compasse. So that at Vaigatz it varyeth to the Westwardes, as it doeth at Newfoundland. And this coming backe againe, before it hath accomplished foure pointes of the Compasse, is verie straunge, and against the opinions of all that haue before written.

Because the line of the Needle that sheweth the Pole Artike, & point Respective, by vertue of the stone passeth betwene Silly and Newfoundland

Pedro de Medina (as I haue sayd in the second Chapter) was doubtfull of the Variation, saying: that if the Compasse did varie, the fault might bee in the making thereof, the wiers or Needle not being well placed: yet he was a learned man, and a great traualer to the West Indias. But it appeareth that he had no more regard to the Variation, then many Mariners in these daies.

For in 18. or 20. yeares that I haue trauailed the Seas, being daily conuersant with many of them, and diligent in enquiring of Variation of the places, where I haue not bene my selfe, I could neuer finde two of them in one truth, except for the trauailes from hence Northwardes, and North Eastwardes. But I suppose the greatest occasion thereof is by lacke of exact Instruments for

no. 10. 1
ob. 10. 1
25. 5. 12
25. 10. 1
25. 10. 1
25. 10. 1
25. 10. 1
25. 10. 1

that purpose. Wherefore I haue deuised one verie necessarie.

And further, because this Variation is diuerse, and is found sometimes to the Eastwards, and sometimes to the Westwards of the Pole, I will declare what the Variation is here in London, by mine owne obseruation, and in other places, as I haue grosely gathered of some traualers, reckoning of beginning at the ancient bound or great Meridian that passeth by the Ile of Saint Michael in the Afores, where it is said, that the Needle sheweth directlie the Pole, and the Respective point both in one line. But this is not found to be so.

True it is, that the North point of the common Compass sheweth the Pole verie nere in that Meridian, but y^e bare Needle sheweth about 4. deg. 30. min. to the Eastwardes of the Pole. So that you must vnderstand alwayes, the difference betwixt the common Compass and the Needle, to be at y^e least $\frac{1}{2}$ part of a point, and of some more: because the greatest part of the common sailing Compasses, hath the Needle set in the flie, halfe a point, or $\frac{1}{2}$ to the Eastwardes of the North, and some $\frac{1}{4}$ of a point, and others at a whole point, and some againe are set directlie vnder the Flower de Lice, or North of the Compass, and these are called Meridionall Compasses, because they shew directlie the Pole in the great Meridian, as the bare Needle doth, which Meridian must needs be at the least 100. or 120. leagues to the Westwards of the Ile of Saint Michael.

And therfore of write of the Variation of places, by the common reports of Mariners that haue traualled Southwards and Westwards from hence, it shall be as vncertaine, as are the diuerse makings of these common Compasses, by which they haue made their obseruations. And therefore I will omit it, and speake onely of this place or Citie of London, whose latitude I finde to be 51. degrees. 32 minutes, and the Variation of the Needle from this Meridian of the Pole to be 11. degrees. 15. minutes.

London
latitude
51. d. 32
minutes.
variation
11. d. 15
minutes.

And

And although this Variation of the Needle, be found in trauaile to be diuerse and changeable, yet at anie land of fixed place assigned, it remaineth alwayes one, still permanent and abiding. And therefore I with the Mariner to make diligent obseruation of this Variation in diuerse places, as he shall trauaile, by some exact Instruments for the purpose. For it may be greatlie for his aide, against he come there another time, especiallie in such places where the Variation is swift, as in these North partes. And because the common Compasse is pertaker of this Variation and Declining, as the Needle is, I will somewhat shew of the sundrie sortes and makings of them, with the inconueniences that may growe by them, and by ill Plats made by these diuerse sortes of Compasses.

The tenth Chapter.

Of the common Compasses, and of the diuerse different sortes and makings of them, with the inconueniences that may growe by them, and the Plats made by them.



If these common sailing Compasses, I finde here in Europa fīue sundrie sortes or sets. The first is of Leuant, made in Sicyle, Genoua, and Venice: and these are all for the most parte made Peridionallie, with the wiers directlie set vnder the South and North of the Compasse, and therefore duellie shewing the point Respective, in all places as the bare Needle, and by this Compasse are the Plattes made, for the most parte of all the Leuant Seas.

Secondlie, there are made in Danske, in the Sound of
E.ij. Den.

Denmarke, and in Flanders, that haue the wyers set at $\frac{3}{4}$ of a point to the Eastwardes of the North of the Compasse, and also some at a whole point, and by these Compasses they make both the plats & Rutters for the Sound.

Thirddie, there hath bene made in this Countrie particularlie for Saint Nicholas & Russia, Compasses set at $\frac{1}{2}$ of a point, and the first plats of that discoverie were made by this Compasse.

Fourthlie, the Compasse made at Siuill, Lisbon, Rochel, Bourdeaux, Roan, and heere in England, are most commonly set at halfe a point, and by this Compasse are the plats of the East and West Indeis made for their Pilots, and also for our Coasts nere heereby, as Fraunce, Spaine, Portugall, and England: and therefore best of these Nations to be vsed, because it is the most common sort that is generally vsed in these coasts. And againe, it is sayd, that the middle hazard is best.

I speake thus, because there are so many sortes of these compasses different each from other, as before I haue declared. And the Maister or Mariner sailing by these compasses of sundrie sortes, may thereby fall into great perill, and the reason is, because that of long time these compasses haue bene vsed, and by them the Marine Plats haue bene described of sundrie sorts, euerie one according to the compasse of that Countrie.

If then hee take not the Compasse of the same set or making that his Plat was made by, then his Card or Plat will shew him one course: and the Compasse, when hee thinketh he goeth well, will carrie him another way. And thus, when he thinketh to fall with the place that his Card sheweth him, he shall be as farre wide, as the Compasse he hath sailed by is different from that his Plat was made by.

This is the ground and cause of many inconueniencies, which is now too late to be generallie reformed. Therefore I wish the Mariner to haue a great regard vnto this,

this, as a principall point in Navigation, and not to saile by a Compasse of one Parish, and a Plat of another: I meane, y they haue a respect, as nere as they may to saile by a Compasse of that countrie, where his plat was made.

Yet many there are that vse our Compasse with Leuant Plats, but I suppose, without good consideratiō therein, they shall make but wide reckonings. And this hath bene sufficiently of late experimented, by our Mariners, that haue vsed Leuant.

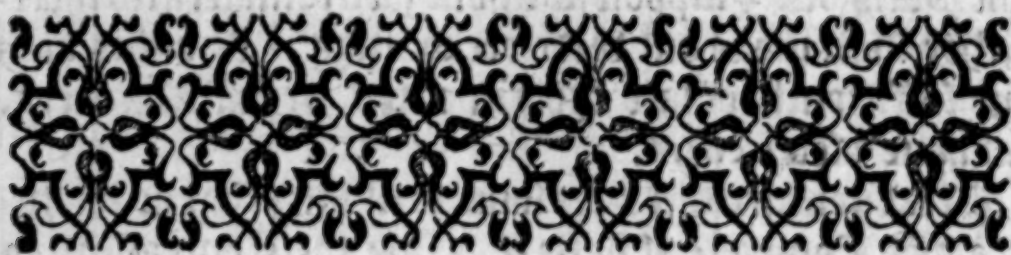
Peraduenture there are some will saie, that he knoweth a good Compasse, if he see it. I saie the Compasse may bee good, and yet not good for him, except his Plat be agreeable. As for example. A Leuant Compasse is a good Compasse, to vse with a Leuant Plat, but it differeth from our Compasse halfe a point more Easterlie. And others there are of Danske, that differ from ours $\frac{1}{2}$ a point more West-erlie, & yet being vsed in their kind, are good Compasses.

And therefore I conclude, that generally the best Compasse is this sort set at $\frac{1}{2}$ a point, because the maiōr parte of Compasses and Plats, doth not differ from this aboue $\frac{1}{4}$ of a point, except the two aboue named of Leuant and Danske.

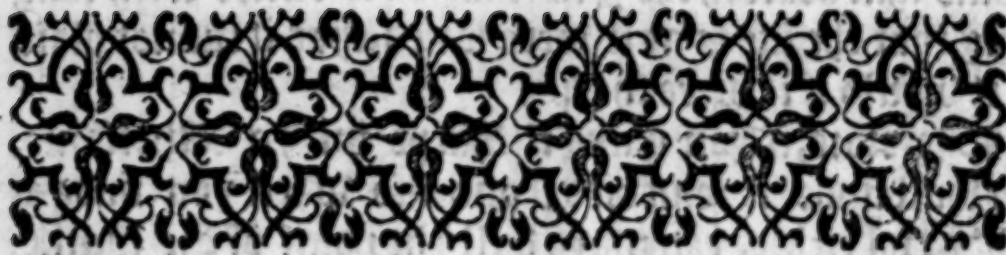
I haue heard many saie that haue trauailed farre to the Southwardes, that the Compasse hath seemed to lose his force, and to waxe weake and dull. I iudge the cause is not by reason of the farre distance from the North Pole, but rather by being long absent from the Stone, for not being touched or refreshed therewith. And againe, the Pinne that beareth the Flie may be so dulled with long vsing, that the flie is as it were staied, that it cannot plaie as it would if it were sharpe.

Wherefore, if you make it sharpe with a Whetstone, you shall finde it remedied: and also when you finde it light, or too tickle, you maye dull the point of the Pinne, with the lease of a paire of writing Tables, untill you may see the toppe thereof, and then the Compasse will bee

better for a high Sea. And thus by sharpening and dul-
ling of the Pinne, you may make your Compass
fit for all Weathers.



HERE AFTER
followveth a Table of the
Sunnes Declination, commonlie
called a Regiment for the Sunne, exactlie calculated vnto
the minute, by the true place of the Sunne, whose grea-
test Declination for this age, is, 23. Degrees, 28.
Minutes, and may serue for 30. yeeres
without great error.



IANVARIE.

First.	Second.	Third.	Fourth.
D.G.M.	D.G.M.	D.G.M.	D.G.M.
1 21 50	1 21 52	1 22 54	1 21 56
2 21 41	2 21 44	2 21 47	2 21 49
3 21 30	3 21 34	3 21 36	3 21 39
4 21 20	4 21 24	4 21 26	4 21 29
5 21 9	5 21 13	5 21 16	5 21 18
6 20 58	6 21 2	6 21 4	6 21 7
7 20 47	7 20 50	7 20 53	7 20 56
8 20 35	8 20 38	8 20 41	8 20 44
9 20 23	9 20 26	9 20 29	9 20 32
10 20 10	10 20 12	10 20 16	10 20 18
11 19 57	11 20 0	11 20 3	11 20 6
12 19 43	12 19 46	12 19 49	12 19 52
13 19 30	13 19 33	13 19 36	13 19 39
14 19 16	14 19 19	14 19 23	14 19 27
15 19 0	15 19 5	15 19 7	15 19 11
16 18 45	16 18 49	16 18 52	16 18 56
17 18 30	17 18 33	17 18 37	17 18 41
18 18 15	18 18 19	18 18 22	18 18 26
19 18 0	19 18 4	19 18 7	19 18 11
20 17 44	20 17 46	20 17 51	20 17 54
21 17 27	21 17 30	21 17 34	21 17 38
22 17 11	22 17 14	22 17 17	22 17 21
23 16 53	23 16 56	23 17 0	23 17 5
24 16 35	24 16 39	24 16 43	24 16 48
25 16 18	25 16 21	25 16 25	25 16 30
26 15 59	26 16 4	26 16 8	26 16 13
27 15 40	27 15 46	27 15 50	27 15 55
28 15 22	28 15 27	28 15 31	28 15 36
29 15 3	29 15 8	29 15 12	29 15 17
30 14 44	30 14 48	30 14 53	30 14 58
31 14 24	31 14 29	31 14 34	31 14 39

South Declination.

South Declination.

South Declination.

FEBRVARIE.

First.	Second.	Third.	Fourth.
D.G.M.	D.G.M.	D.G.M.	D.G.M.
1 14 5	1 14 10	1 14 15	1 14 20
2 13 45	2 13 51	2 13 55	2 13 59
3 13 25	3 13 30	3 13 35	3 13 40
4 13 5	4 13 10	4 13 14	4 13 20
5 12 45	5 12 50	5 12 54	5 13 0
6 12 24	6 12 30	6 12 34	6 12 40
7 12 3	7 12 8	7 12 13	7 12 19
8 11 42	8 11 47	8 11 52	8 11 58
9 11 21	9 11 26	9 11 31	9 11 36
10 10 0	10 11 5	10 11 10	10 11 15
11 10 39	11 10 44	11 10 49	11 10 54
12 10 17	12 10 22	12 10 27	12 10 33
13 9 54	13 10 0	13 10 5	13 10 11
14 9 32	14 9 38	14 9 43	14 9 49
15 9 10	15 9 16	15 9 21	15 9 27
16 8 48	16 8 54	16 8 59	16 9 5
17 8 26	17 8 32	17 8 37	17 8 43
18 8 3	18 8 9	18 8 14	18 8 20
19 7 41	19 7 47	19 7 52	19 7 58
20 7 18	20 7 24	20 7 29	20 7 35
21 6 55	21 7 1	21 7 6	21 7 12
22 6 32	22 6 38	22 6 43	22 6 49
23 6 9	23 6 15	23 6 20	23 6 26
24 5 46	24 5 52	24 5 57	24 6 3
25 5 22	25 5 28	25 5 34	25 5 40
26 4 59	26 5 5	26 5 10	26 5 16
27 4 35	27 4 41	27 4 47	27 4 53
28 4 12	28 4 18	28 4 23	28 4 29
29 3 50	29 4 5	29 4 10	29 4 16
30 3 27	30 3 33	30 3 38	30 3 44
31 3 4	31 3 10	31 3 15	31 3 21

South Declination.

South Declination.

South Declination.

MARCH.

First.			Second.			Third.			Fourth.		
D.M.G.			D.M.G.			D.M.G.			D.M.G.		
1	3	49	1	3	54	1	4	0	1	3	42
2	3	26	2	3	31	2	3	36	2	3	19
3	3	2	3	3	7	3	3	13	3	2	55
4	2	38	4	2	43	4	2	50	4	2	31
5	2	14	5	2	19	5	2	26	5	2	7
6	1	50	6	1	55	6	2	2	6	1	43
7	1	27	7	1	32	7	1	38	7	1	21
8	1	4	8	1	9	8	7	15	8	0	57
9	0	40	9	0	45	9	0	51	9	0	33
10	0	16	10	0	21	10	0	28	10	0	9
11	0	8	11	0	2	11	0	4	11	0	14
12	0	32	12	0	26	12	0	20	12	0	38
13	0	56	13	0	50	13	0	44	13	1	2
14	1	20	14	1	14	14	1	8	14	1	26
15	1	43	15	1	37	15	1	31	15	1	49
16	2	6	16	2	0	16	1	54	16	2	13
17	2	30	17	2	24	17	2	17	17	2	36
18	2	53	18	2	47	18	2	41	18	2	59
19	3	17	19	3	11	19	3	5	19	3	23
20	3	39	20	3	34	20	3	29	20	3	46
21	4	3	21	3	57	21	3	41	21	4	10
22	4	25	22	4	20	22	4	15	22	4	32
23	4	49	23	4	43	23	4	37	23	4	56
24	5	12	24	5	7	24	5	1	24	5	18
25	5	36	25	5	30	25	5	24	25	5	42
26	5	57	26	5	53	26	5	48	26	6	4
27	6	20	27	6	16	27	6	10	27	6	27
28	6	43	28	6	38	28	6	33	28	6	49
29	7	6	29	7	1	29	6	55	29	7	12
30	7	29	30	7	24	30	7	18	30	7	34
31	7	51	31	7	46	31	7	41	31	7	57

F.

APRIL.

First.		Second.		Third.		Fourth.
D.G.M.		D.G.M.		D.G.M.		D.G.M.
1 8 12		1 8 8		1 8 2		1 8 18
2 8 35		2 8 30		2 8 24		2 8 41
3 8 57		3 8 52		3 8 46		3 9 3
4 8 18		4 9 13		4 9 8		4 9 24
5 9 41		5 9 35		5 9 29		5 9 45
6 10 1		6 9 50		6 9 50		6 10 7
7 10 23		7 10 18		7 10 12		7 10 29
8 10 45		8 10 39		8 10 34		8 10 50
9 11 5		9 11 0		9 10 55		9 11 10
10 11 26		10 11 20		10 11 15		10 11 31
11 11 46		11 11 41		11 11 36		11 11 51
12 12 6		12 12 2		12 11 56		12 12 11
13 12 27		13 12 22		13 12 16		13 12 32
14 12 46		14 12 42		14 12 36		14 12 51
15 13 5		15 13 1		15 12 55		15 13 10
16 13 25		16 13 20		16 13 15		16 13 29
17 13 45		17 13 40		17 13 35		17 13 49
18 14 4		18 13 59		18 13 54		18 14 8
19 14 22		19 14 18		19 14 14		19 14 26
20 14 40		20 14 36		20 14 32		20 14 45
21 14 59		21 14 55		21 14 51		21 15 4
22 15 18		22 15 13		22 15 9		22 15 22
23 15 35		23 15 31		23 15 27		23 15 39
24 15 53		24 15 49		24 15 45		24 15 57
25 16 11		25 16 7		25 16 2		25 16 15
26 16 27		26 16 23		26 16 20		26 16 31
27 16 45		27 16 41		27 16 36		27 16 48
28 17 1		28 16 56		28 16 53		28 17 5
29 17 17		29 17 13		29 17 10		29 17 20
30 17 33		30 17 29		30 17 25		30 17 37

North Declination.

North Declination.

North Declination.

MAY.

First.		Second.		Third.		Fourth h.
D.G.M.		D.G.M.		D.G.M.		D.G.M.
1 17 49		1 17 45		1 17 42		1 17 53
2 18 4		2 18 1		2 17 57		2 18 8
3 18 19		3 18 15		3 18 12		3 18 23
4 18 33		4 18 30		4 18 26		4 18 37
5 18 48		5 18 45		5 18 40		5 18 51
6 19 2		6 18 39		6 18 55		6 19 6
7 19 16		7 19 13		7 19 10		7 19 20
8 19 30		8 19 17		8 19 25		8 19 33
9 19 43		9 19 39		9 19 36		9 19 46
10 19 55		10 19 51		10 19 49		10 19 59
11 20 5		11 20 5		11 20 2		11 20 11
12 20 19		12 20 17		12 20 14		12 20 23
13 20 31		13 20 29		13 20 26		13 20 35
14 20 43		14 20 41		14 20 38		14 20 46
15 20 55		15 20 52		15 20 49		15 20 58
16 21 5		16 21 3		16 20 59		16 21 8
17 21 16		17 21 13		17 21 10		17 21 19
18 21 25		18 21 24		18 21 20		18 21 28
19 21 35		19 21 33		19 21 30		19 21 38
20 21 45		20 21 43		20 21 40		20 21 48
21 21 52		21 21 51		21 21 49		21 21 54
22 22 1		22 21 59		22 21 56		22 22 4
23 22 9		23 22 8		23 22 6		23 22 11
24 22 17		24 22 15		24 22 13		24 22 19
25 22 24		25 22 23		25 22 21		25 22 26
26 22 31		26 22 30		26 22 27		26 22 33
27 22 38		27 22 37		27 22 34		27 22 39
28 22 55		28 22 42		28 22 41		28 22 46
29 22 50		29 22 49		29 22 47		29 22 52
30 22 55		30 22 54		30 22 53		30 22 56
31 23 1		31 23 0		31 22 58		31 23 2

North Declination,

North Declination,

North Declination,

Fij.

IVNE.

First.		Second.		Third.		Fourth.
D.G.M.		D.G.M.		D.G.M.		D.G.M.
1 13 4		1 23 4		1 23 3		1 23 6
2 23 9		2 23 9		2 23 8		2 23 11
3 23 13		3 23 12		3 23 12		3 23 13
4 23 16		4 23 15		4 23 14		4 23 17
5 23 19		5 23 18		5 23 18		5 23 20
6 23 21		6 23 21		6 23 20		6 23 22
7 23 23		7 23 23		7 23 22		7 23 24
8 23 25		8 23 25		8 23 24		8 23 25
9 23 26	* North	9 23 26	* North	9 23 26	* North	9 23 26
10 23 27		10 23 27		10 23 27		10 23 27
11 23 28		11 23 28		11 23 28		11 23 28
12 23 28	Tropic.	12 23 28	Tropic.	12 23 28	Tropic.	12 23 28
13 23 27	Declination.	13 23 27	Declination.	13 23 28	Declination.	13 23 27
14 23 26		14 23 26		14 23 27		14 23 26
15 23 25		15 23 25		15 23 26		15 23 25
16 23 23		16 23 24		16 23 24		16 23 23
17 23 21		17 23 22		17 23 22		17 23 21
18 23 19		18 23 20		18 23 20		18 23 18
19 23 16		19 23 17		19 23 18		19 23 15
20 23 13		20 23 13		20 23 14		20 23 12
21 23 10		21 23 11		21 23 12		21 23 9
22 23 5		22 23 6		22 23 8		22 23 4
23 23 1		23 23 3		23 22 3		23 23 0
24 22 56		24 22 57		24 22 59		24 22 54
25 22 51		25 22 52		25 22 54		25 22 49
26 22 45		26 22 46		26 22 48		26 22 43
27 22 38		27 22 40		27 22 41		27 22 37
28 22 32		28 22 33		28 22 34		28 22 30
29 22 25		29 22 26		29 22 28		29 22 23
30 22 17		30 22 20		30 22 22		30 22 16

IVLY

First.	Second.	Third.	Fourth.
D.G.M.	D.G.M.	D.G.M.	D.G.M.
1 22 10	1 22 12	1 22 13	1 22 18
2 22 2	2 22 4	2 22 6	2 21 59
3 21 53	3 21 55	3 21 58	3 21 51
4 21 46	4 21 49	4 21 50	4 21 43
5 21 36	5 21 39	5 21 40	5 21 34
6 21 27	6 21 29	6 21 31	6 21 24
7 21 17	7 21 19	7 21 22	7 21 14
8 21 5	8 21 9	8 21 11	8 21 4
9 20 56	9 20 58	9 21 0	9 20 53
10 20 45	10 20 47	10 20 50	10 20 42
11 20 33	11 20 36	11 20 39	11 20 30
12 20 21	12 20 25	12 20 27	12 20 17
13 20 10	13 20 12	13 20 14	13 20 6
14 19 58	14 20 0	14 20 3	14 19 53
15 19 44	15 19 47	15 19 49	15 19 41
16 19 32	16 19 35	16 19 37	16 19 29
17 19 18	17 19 22	17 19 16	17 19 15
18 19 5	18 19 7	18 19 21	18 19 1
19 18 50	19 18 54	19 18 56	19 18 46
20 18 36	20 18 39	20 18 43	20 18 32
21 18 21	21 18 25	21 18 27	21 18 17
22 18 7	22 18 10	22 18 13	22 18 3
23 17 51	23 17 56	23 17 59	23 17 47
24 17 36	24 17 41	24 17 44	24 17 31
25 17 19	25 17 24	25 17 27	25 17 16
26 17 4	26 17 8	26 17 12	26 17 0
27 16 48	27 16 53	27 16 54	27 16 43
28 16 31	28 16 35	28 16 39	28 16 26
29 16 14	29 16 19	29 16 21	29 16 10
30 15 57	30 16 1	30 16 6	30 15 53
31 15 38	31 15 44	31 15 49	31 15 35

North Declination.

North Declination.

North Declination.

AVGVST.

First .			Second			Third.			Fourth		
D.G.M.			D.G.M.			D.G.M.			D.G.M.		
1	15	21	1	15	26	1	15	30	1	15	17
2	55	3	2	15	9	2	15	13	2	14	59
3	14	44	3	14	50	3	14	55	3	14	40
4	14	26	4	14	32	4	14	36	4	14	22
5	14	8	5	14	14	5	14	18	5	14	4
6	13	49	6	13	54	6	13	59	6	13	44
7	13	29	7	13	35	7	13	40	7	13	25
8	13	10	8	13	15	8	13	21	8	13	6
9	12	15	9	13	56	9	13	2	9	12	47
10	12	32	10	12	37	10	12	42	10	12	28
11	12	12	11	12	17	11	12	23	11	12	7
12	11	52	12	12	57	12	12	2	12	11	47
13	11	31	13	11	37	13	11	42	13	11	27
14	11	11	14	11	17	14	11	22	14	11	7
15	10	51	15	11	56	15	11	1	15	10	46
16	10	30	16	10	36	16	10	41	16	10	25
17	10	9	17	10	14	17	10	19	17	10	3
18	9	47	18	9	52	18	9	58	18	9	42
19	9	26	19	9	31	19	9	37	19	9	21
20	9	5	20	9	10	20	9	15	20	8	59
21	8	44	21	8	48	21	8	54	21	8	38
22	8	22	22	8	27	22	8	33	22	8	16
23	8	0	23	8	5	23	8	11	23	7	54
24	7	38	24	7	44	24	7	49	24	7	32
25	7	16	25	7	22	25	7	26	25	7	10
26	6	53	26	7	59	26	7	4	26	6	47
27	6	31	27	6	37	27	6	41	27	6	25
28	6	9	28	6	15	28	6	19	28	6	3
29	5	46	29	5	52	29	5	57	29	5	40
30	5	23	30	5	29	30	5	34	30	5	17
31	5	1	31	5	7	31	5	11	31	4	55

North Declination.

North Declination.

North Declination.

SEPTEMBER.

First.			Second.			Third.			Fourth.		
D.M.G.			D.M.G.			D.M.G.			D.M.G.		
1	4	37	1	4	43	1	4	49	1	4	31
2	4	15	2	4	20	2	4	26	2	4	29
3	3	52	3	3	58	3	4	4	3	3	46
4	3	30	4	3	34	4	3	40	4	3	23
5	3	6	5	3	12	5	3	18	5	3	0
6	2	43	6	2	49	6	2	55	6	2	36
7	2	19	7	2	25	7	2	31	7	2	13
8	1	56	8	2	2	8	2	8	8	1	49
9	1	34	9	1	39	9	1	44	9	1	27
10	1	10	10	1	16	10	1	22	10	1	4
11	0	47	11	0	53	11	0	58	11	0	40
12	0	23	12	0	36	12	0	34	12	0	16
13	0	0	13	0	6	13	0	11	13	0	7
14	0	24	14	0	18	14	0	12	14	0	31
15	0	48	15	0	41	15	0	36	15	0	54
16	1	11	16	1	15	16	1	10	16	1	18
17	1	24	17	1	28	17	1	23	17	1	40
18	1	57	18	1	51	18	1	45	18	2	4
19	2	21	19	2	15	19	2	9	19	2	27
20	2	45	20	2	38	20	2	33	20	2	51
21	3	8	21	3	2	21	2	57	21	3	14
22	3	31	22	3	25	22	3	21	22	3	37
23	3	54	23	3	48	23	3	43	23	4	1
24	4	18	24	4	12	24	4	7	24	4	23
25	4	40	25	4	34	25	4	29	25	4	47
26	5	4	26	4	58	26	4	53	26	5	10
27	5	27	27	5	21	27	5	16	27	5	34
28	5	51	28	5	45	28	5	40	28	5	57
29	6	13	29	6	8	29	6	2	29	6	19
30	6	36	30	6	30	30	6	25	30	6	42

* North Declination.

Line.

* South Declination.

* North Declination.

Line.

* South Declination.

* North Declination.

Line.

* South Declination.

OCTOBER.

First.	Second.	Third.	Fourth.
D.G.M.	D.G.M.	D.G.M.	D.G.M.
1 6 59	1 6 53	1 6 48	1 7 5
2 7 22	2 7 16	2 7 10	2 7 27
3 7 45	3 7 39	3 7 33	3 7 50
4 8 7	4 8 1	4 7 56	4 8 12
5 8 30	5 8 24	5 8 18	5 8 35
6 8 52	6 8 46	6 8 41	6 8 57
7 9 14	7 9 7	7 9 31	7 9 19
8 9 36	8 9 29	8 9 25	8 9 40
9 9 58	9 9 51	9 9 46	9 10 2
10 10 19	10 10 13	10 10 8	10 10 24
11 10 42	11 10 35	11 10 30	11 10 46
12 11 3	12 12 57	12 10 52	12 11 8
13 11 24	13 11 18	13 11 13	13 11 28
14 11 45	14 11 38	14 11 34	14 11 49
15 12 5	15 11 59	15 11 55	15 12 10
16 12 26	16 12 20	16 12 16	16 12 31
17 12 46	17 12 40	17 12 36	17 12 51
18 13 6	18 13 0	18 12 56	18 13 11
19 13 26	19 13 20	19 13 15	19 13 31
20 13 46	20 13 40	20 13 35	20 13 51
21 14 6	21 14 0	21 13 55	21 14 11
22 14 25	22 14 20	22 14 15	22 14 30
23 14 44	23 14 39	23 14 34	23 14 49
24 15 3	24 14 58	24 14 54	24 15 8
25 15 22	25 15 17	25 15 12	25 15 26
26 15 40	26 15 35	26 15 31	26 15 45
27 15 59	27 15 54	27 15 50	27 16 4
28 16 17	28 16 12	28 16 8	28 16 21
29 16 34	29 16 29	29 16 25	29 16 38
30 16 52	30 16 47	30 16 43	30 16 56
31 17 10	31 17 4	31 17 0	31 17 13

South Declination.

South Declination.

South Declination.

NOVEMBER.

First.		Second.		Third.		Fourth.
D.G.M.		D.G.M.		D.G.M.		D.G.M.
1 17 25		1 17 20		1 17 17		1 17 29
2 17 42		2 17 38		2 17 33		2 17 46
3 17 58		3 17 54		3 17 51		3 18 2
4 18 13		4 18 10		4 18 6		4 18 17
5 18 28		5 18 25		5 18 21		5 18 32
6 18 44		6 18 39		6 18 36		6 18 48
7 18 59		7 18 55		7 18 51		7 19 2
8 19 14		8 19 10		8 19 6		8 19 17
9 19 29		9 19 25		9 19 21		9 19 32
10 19 42		10 19 38		10 19 34		10 19 45
11 19 55		11 19 51		11 19 47		11 19 59
12 20 8		12 20 5		12 20 2		12 20 11
13 20 20		13 20 17		13 20 14		13 20 24
14 20 33		14 20 30		14 20 27		14 20 36
15 20 45		15 20 42		15 20 39		15 20 49
16 20 55		16 20 54		16 20 51		16 20 59
17 21 8		17 21 6		17 21 2		17 21 11
18 21 19		18 21 17		18 21 13		18 21 22
19 21 29		19 21 27		19 21 24		19 21 32
20 21 40		20 21 37		20 21 34		20 21 42
21 21 50		21 21 48		21 21 45		21 21 51
22 21 58		22 21 54		22 21 52		22 22 0
23 22 7		23 22 5		23 22 2		23 22 8
24 22 15		24 22 12		24 22 11		24 22 16
25 22 23		25 22 21		25 22 19		25 22 25
26 22 30		26 22 28		26 22 26		26 22 32
27 22 37		27 22 35		27 22 33		27 22 39
28 22 44		28 22 42		28 22 40		28 22 46
29 22 50		29 22 49		29 22 47		29 22 52
30 22 55		30 22 54		30 22 53		30 22 57

South Declination.

South Declination.

South Declination.

DECEMBER

First.		Second.		Third.		Fourth.
D.G.M.		D.G.M.		D.G.M.		D.G.M.
1 23 2		1 23 0		1 23 58		1 23 3
2 23 6		2 23 4		2 23 4		2 23 7
3 23 11		3 23 9		3 23 9		3 23 12
4 23 13		4 23 13		4 23 12		4 23 14
5 23 17		5 23 16		5 23 15		5 23 18
6 23 20		6 23 20		6 23 19		6 23 21
7 23 22		7 23 22		7 23 21		7 23 23
8 23 24		8 23 24		8 23 23		8 23 25
9 23 26		9 23 26		9 23 25		9 23 26
10 23 27		10 23 27		10 23 26		10 23 27
11 23 28		11 23 28		11 23 27		11 23 28
12 23 28		12 23 28		12 23 28		12 23 28
13 23 27		13 23 28		13 23 28		13 23 27
14 23 26		14 23 27		14 23 27		14 23 26
15 23 25		15 23 26		15 23 26		15 23 24
16 23 23		16 23 24		16 23 24		16 23 22
17 23 21		17 23 21		17 23 22		17 23 20
18 23 19		18 23 19		18 23 20		18 23 18
19 23 15		19 23 16		19 23 17		19 23 14
20 23 12		20 23 13		20 23 13		20 23 11
21 23 8		21 23 9		21 23 10		21 23 6
22 23 3		22 23 4		22 23 5		22 23 2
23 22 58		23 23 0		23 23 1		23 22 56
24 22 53		24 22 54		24 22 55		24 22 51
25 22 47		25 22 48		25 22 50		25 22 45
26 22 40		26 22 41		26 22 43		26 22 38
27 22 33		27 22 34		27 22 36		27 22 31
28 22 26		28 22 27		28 22 29		28 22 24
29 22 18		29 22 20		29 22 22		29 22 16
30 22 10		30 22 12		30 22 13		30 22 8
31 22 0		31 22 4		31 22 6		31 22 59

South

Tropic.

Declination.

South

Tropic.

Declination.

South

Tropic.

Declination.

HOW TO VSE the Sunnes Declinati-

on, for knowing the elevation of the Pole.

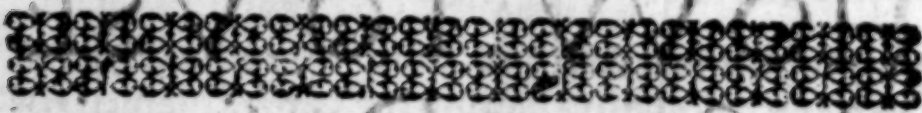
First, learne whether the Sunne haue South Declination, or North Declination. Then marke the shadow he giueth, whether it shew towards that Pole hee is nearest, or to the contrarie.


If the Sun giue shadowe, the same waie that he is fro the Equinoctiall, he shall be betwene you & the Equinoctiall, then take the Meridian altitude, & subtract it from 90. into the rest, adioyne your Declination for the daie, the sum of both is the elevation of the Pole, or your distance from the Equinoctiall.

But if the Sun giue the shadowe to the contrarie side of the Equinoctiall & he is in, (that is to saie,) the Sun in North Declination giue the shadowe Southwards, or in South Declinations giue the shadowe Northwards, then either the Equinoctiall shall be betwene you & the Sun, or you in the Equinoctiall, or else you shall be betwene the Equinoctiall and the Sunne, which you shall thus know. Adde unto your Meridian altitude of the Sunne, the Declination for the day, if it amount to lesse then 90. d. so much as wanteth of 90. d. you shall be from the Equinoctiall that waie that the shadowe goeth.

But if it amount iust to 90. d. you shall be vnder the Equinoctiall. If it amount to moze then 90. d. so much as is ouer and aboue 90. d. you shall be from the Equinoctiall towards the Sun, betwene the Equinoctiall & the Sun.

And if at anye time you shall obserue the Suns altitude in your Zenith, then looke what declination it hath, and so much shall you be from the Equinoctiall, on the same side & Sun is in, but if he haue no Declination, then shall you be vnder the Equinoctiall line.


 HEREAFTER FOLLOWETH THREE
 Tables, the first is of the Coniunctions of the
 Sunne & Moone: the second of their op-
 positions, exactly drawen out of Ioan-
 nes Stadius Ephemerides: and the
 third of the Prime and moue-
 able Feastes.


 In the two first Tables in euery square
 of euerie Colomie, you shall finde noted
 three numbers, which haue severall signi-
 fications: the first number is for the daye
 of the Moneth, the second for Houres, and
 the thirde for Minutes, of the middle instant
 of time, for the coniunction, or opposition of the Sunne and
 Moone.

We are to note, that the naturall daye accompted in
 these Tables, beginneth alwaies at the instant of none or
 middaye, and continueth till the next day none, which is
 the iust tyme of 24. houres.

Therefore, when you finde the second number in any
 square of the two first Tables, to exceede 12. the same is to
 be accompted with the Minutes following (which is the
 third number) for so much after midnight, or of the morn-
 ing, or for enone of the next daye.

The vse of the Tables.

First seeke in the third Table the Prime, and wora-
 ble to the yeare of our Lorde. Then returne to the
 Table of Coniunction, or opposition of the Moone:
 and in the first colomie seeke the same number of the
 Prime. Then in the head of the Table, you shall seeke the
 Moneth,

Moneth, for which you desire to know the coniunction or opposition: and descending downe the same Colome, till you come against the Prime specified, in that square you shall finde three numbers noted, the first is for the daye of the Moneth, the second the houre, & the third the minutes to be adioyned with the houre, for the middle instant of time, of the coniunction or opposition.

Example.

This yeare. 1581. I desire to know the daye of the Moones Coniunction or Change, in the Moneth of August, I seeke in the third Table (or Table of the moueable Feastes) for the Prime, and finde it to be. 5. with which number I returne to the first Table (which is the Table of the coniunction or change) & finde the same in the first Colome. Then I seeke in the head of the Table for August, and descending downe in the same Colome, till I come to the square which answereth to the Prime. 5. I finde therein noted 28 — 16 — 45. which signifie that the coniunction is the 28. day of the moneth, at 16. H. — 45 M. — and bicause the second number exceedeth 12. therefore I saie that the coniunction shall bee the 29. daie at 4. H. — 45. — M. in the morning.

But if ye finde in anie one square three numbers double noted, they doe signifie that in the same moneth there is two coniunctions or oppositions, and likewise doe shewe the daies, houres, and minutes thereof.

If in anie square in the Colome of anie moneth in the Table of coniunction, you finde noted this marke *. the same doth signifie the Eclipse of the Sunne at the instant of time noted for the coniunction in that moneth.

Likewise, if in anie square in the Table of the oppositions or full Moones, you finde this marke C. the same doth signifie the Eclipse of the Moone, at y instant of time noted in the same square.

The first Table for the conjunction

Prime.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
1	18 11 12	17 6 0	19 0 5	17 15 44	17 4 46	15 15 35	15 0 47	13 8 43	11 15 51	11 2 0	9 6 54	9 0 9
2	7 14 0	6 5 50	7 23 50	6 16 54	6 10 14	4 23 11	4 12 41	2 23 7	1 8 51	30 3 50	28 13 52	28 0 34
3	26 12 56	25 2* 48	27 6 0	25 9 48	25 1 27	23 16 24	23 6 44	21 18 50	20 8 1	19 19 23	18 6 11	17 17 19
4	16 2 3	14 12 50	15 0 38	13 12 55	13 3 3	11 17 19	11 8 20	10 0 14	8 15 38	8 5 53	6 19 16	6 7 35
5	4 18 21	3 4 23	4 14 6	3 0 10	2 10 0	31 31 17	30 0 11	28 16 45	27 9 32	27 2 32	25 18 0	25 8 15
6	23 20 5	22 6 32	23 15 20	22 0 17	21 8 15	19 *17 40	19 4 54	17 18 10	16 9 49	16 3 15	14 21 47	14 14 39
7	13 9 23	11 19 0	13 7 36	11 16 30	11 0 9	9 7 39	8 15 48	7 1 20	5 14 0	5 3 58	3 21 15	3 16 21
8	2 11 40	1 5 5	1 19 46	31 7 37	29 16 56	29 1 0	27 8 0	24 16 48	23 10 53	23 0 44	21 16 24	21 11 14
9	20 5 56	19 0 45	20 17 4	19 5 45	18 16 24	17 0 49	16 8 24	14 15 51	13 0 5	12 9 47	10 21 58	10 12 56
10	9 6 40	8 0 36	9 18 49	8 11 39	8 1 54	6 13 47	5 23 50	4 8 33	2 16 48	2 1 17	31 10 45	29 22 0

of the Moone for six yeeres.

Prime.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
11	28 2 0	26 17 23	28 12 2	27 4 43	26 19 54	25 9 18	23 21 20	23 7 38	21 17 41	21 3 6	19 12 31	18 23 5
12	17 10 35	15 23 56	16 14 17	15 5 26	14 20 55	13 12 13	13 3 12	11 17 0	10 5 54	9 17 29	8 4 38	7 15 12
13	6 1 29	4 11 56	5 22 47	4 10 47	3 23 36	2 13 18	2 4 19	30 11 20	29 2 29	28 17 0	27 5 46	26 17 23
14	25 3 44	23 13 35	24 22 40	23 8 46	22 19 3	21 6 51	20 20 45	19 11 51	18 4 22	17 21 51	16 14 30	16 5 30
15	14 18 23	13 5 50	14 15 0	12 23 35	12 7 51	10 16 29	10 2 33	8 14 45	7 5 22	6 21 48	5 16 21	5 10 47
16	4 4 17	2 18 40	3 6 35	1 16 20	03 7 32	28 15 17	28 0 3	26 10 40	25 0 0	24 16 12	23 10 47	23 6 8
17	22 0 39	20 16 45	22 5 55	20 16 25	20 0 42	18 8 6	17 15 32	15 23 13	14 8 47	13 20 50	12 11 55	12 5 32
18	11 10 32	9 19 43	11 13 0	10 3 4	9 15 3	8 0 32	7 8 25	5 16 0	3 23 36	3 8 43	1 19 44	1 9 18
19	29 19 12	28 13 42	30 6 56	27 22 30	28 11 38	26 22 7	26 8 0	24 16 25	23 1 6	22 10 3	20 20 26	20 7 19

The second Table sheweth

Prime.	January.	February.	March.	April.	May.	June.	Julie.	August.	September.	October.	November.	December.
1	4 3 7	2 12 42	3 22 21	2 7 24	1 31 16 2 45 52	29 14 13	29 3 54	27 19 19	26 12 20	26 6 0	25 1 17	25 5 23
2	23 3 24	21 14 25	22 23 52	21 8 6	20 15 59	19 00 22	18 10 14	16 22 7	15 12 46	15 5 56	14 0 44	13 19 30
3	12 12 33	11 3 14	12 17 0	11 0 41	10 8 58	8 16 14	7 23 25	6 8 5	4 18 38	4 8 13	3 0 33	2 18 48
4	1 31 14 8 46	1 8 0 28 32	1 0 28 32	29 0 32	28 9 17	26 16 21	25 23 31	24 7 47	22 17 16	22 6 36	20 20 22	20 15 4
5	19 8 48	18 3 30	19 20 35	18 11 22	17 22 53	16 8 19	15 16 40	14 0 30	12 7 10	11 17 33	10 4 39	9 17 55
6	8 9 48	7 3 7	8 21 22	7 14 22	7 5 40	5 19 6	5 6 14	3 17 27	2 1 10	1 9 50	30 19 7	28 20 14
7	27 7 20	25 22 45	27 14 48	26 7 5	25 22 48	24 13 12	24 2 46	22 14 19	21 1 13	20 11 17	18 21 36	18 7 13
8	16 18 38	15 6 5	15 19 0	14 8 56	13 23 15	12 14 50	12 6 4	10 20 53	9 11 4	9 18 27	7 12 17	6 23 40
9	5 9 36	3 20 0	5 5 51	3 16 44	3 4 22	1 17 00	1 7 9	30 22 17	29 14 15	28 6 33	26 12 24	26 1 10
10	24 12 5	22 22 0	24 6 54	22 15 51	22 1 14	20 11 54	20 0 25	18 14 53	17 7 14	17 0 42	15 18 26	15 11 10

the full Moones for six.yeeres.

December.	November.	October.	September.	August.	July.	June.	May.	April.	March.	February.	January.	Prime.
4	4	6	6	7	9	9	11	12	13	12	14	11
0	21	0	8	19	8	23	15	8	23	13	1	
0	19	32	58	13	49	40	54	0	35	37	30	
22	22	23	24	25	27	27	29	1	2	2	3	
8	13	19	4	16	7	23	16	0	13	0	8	12
30	19	36	51	49	37	22	19	21	42	25	8	
11	11	13	13	15	16	17	19	19	21	19	21	
8	16	21	16	7	23	16	9	23	11	21	3	13
56	26	54	12	25	51	47	8	34	35	35	51	
30	30	2	3	5	6	7	8	9	10	8	10	
5	15	16	8	0	16	7	20	7	16	22	3	14
48	14	48	9	11	20	13	49	42	5	21	6	
19	20	21	22	24	25	26	27	28	29	27	18	
15	4	18	9	0	15	4	16	3	9	16	22	15
34	7	30	35	33	13	25	7	0	37	22	37	
8	8	10	10	12	13	14	15	16	17	16	18	
6	20	10	23	12	23	9	18	2	10	18	4	16
37	30	19	41	8	36	30	25	35	27	42	36	
27	27	29	29	1	3	3	4	5	6	5	6	
9	22	10	21	16	1	10	20	5	15	4	17	17
12	43	34	35	48	35	25	14	38	11	17	12	
16	17	18	19	20	21	22	23	24	25	24	25	
23	9	18	2	9	18	3	14	2	15	5	19	18
14	32	16	8	29	0	11	25	15	13	12	15	
6	6	7	8	9	10	11	13	13	15	14	15	
7	13	19	2	10	21	9	0	15	6	2	11	19
8	35	31	23	48	31	53	9	12	32	34	6	

A Table for 26. yeeres, shewing the Prime, the Epact, and Dominicall Letter. And also what daie of the moneth these moueable feasts falleth on. And heere alwaies ye shall note, that the Epact chaungeth the first daie of March, and the Prime and Dominicall Letter the first of Januarie : where you see two Dominicall Letters, that is leape yeere.

Anno Domini.	The Prime	The Epact.	Dominicall letter.	Easter daie.	Rogation Sundaie.	Affection daie.	Whitfun-daie.	Aduent Sundaie.
1581	5	25	A	26. March.	30. Aprill.	4. Maie.	14. Maie.	3. Decēb.
1582	6	6	G	15. Aprill.	20. Maie.	24. Maie.	3. Iune.	2. Decēb.
1583	7	17	F	31. March.	5. Maie.	9. Maie.	10. Maie.	1. Decēb.
1584	8	28	ED	19. Aprill.	24. Maie.	28. Maie.	7. Iune.	29. Nouē.
1585	9	9	C	11. Aprill.	16. Maie.	20. Maie.	30. Maie.	28. Nouē.
1586	10	20	B	3. Aprill.	8. Maie.	12. Maie.	22. Maie.	27. Nouē.
1587	11	1	A	16. Aprill.	21. Maie.	25. Maie.	4. Iune.	3. Decēb.
1588	12	12	GF	7. Aprill.	12. Maie.	16. Maie.	26. Maie.	1. Decēb.
1589	13	23	E	30. March.	4. Maie.	8. Maie.	18. Maie.	30. Nouē.
1590	14	4	D	19. Aprill.	24. Maie.	28. Maie.	7. Iune.	29. Nouē.
1591	15	15	C	4. Aprill.	9. Maie.	13. Maie.	23. Maie.	28. Nouē.
1592	16	26	BA	29. March.	30. April.	4. Maie.	14. Maie.	3. Decēb.
1593	17	7	G	15. Aprill.	20. Maie.	24. Maie.	3. Iune.	2. Decēb.
1594	18	18	F	31. March.	5. Maie.	9. Maie.	19. Maie.	1. Decēb.
1595	19	29	E	20. Aprill.	25. Maie.	29. Maie.	8. Iune.	30. Nouē.
1596	1	11	DC	11. April.	16. Maie.	20. Maie.	30. Maie.	28. Nouē.
1597	2	22	B	27. March.	1. Maie.	5. Maie.	15. Maie.	27. Nouē.
1598	3	3	A	16. Aprill.	21. Maie.	25. Maie.	4. Iune.	3. Decēb.
1599	4	14	G	8. Aprill.	13. Maie.	17. Maie.	27. Maie.	2. Decēb.
1600	5	25	FE	23. March.	27. April.	1. Maie.	11. Maie.	30. Nouēb.
1601	6	6	D	12. Aprill.	17. Maie.	21. Maie.	31. Maie.	29. Nouēb.
1602	7	17	C	4. Aprill.	9. Maie.	13. Maie.	23. Maie.	28. Nouēb.
1603	8	28	B	24. Aprill.	29. Maie.	2. Iune.	12. Iune.	27. Nouēb.
1604	9	9	AG	8. Aprill.	13. Maie.	17. Maie.	27. Maie.	2. Decēb.
1605	10	20	F	31. March.	5. Maie.	9. Maie.	19. Maie.	1. Decēb.
1606	11	1	E	20. Aprill.	25. Maie.	29. Maie.	8. Iune.	30. Nouēb.

The contents of the Ka-

lender following.



In the first & second colome, vnder the title daies, are the daies of the moneth, and Dominicall letters, the third is of the feasts: the fourth colome sheweth how many houres & minutes the daie containeth from Sun rising to Sunne setting, the Pole being eleuated 52. degrees. The fifth colome of the 27. letters, serueth with the helpe of a Table following, to know what signe the Moone is in at all times.

How by the length of the daie is knowen the length of the night, with the houre and minute of the Sunnes rising and setting.

Diuide the length of the daie, which you shall finde in the Kalender, into two parts equallie, the one halfe sheweth the houres & minutes of the Sunns setting, the houres and minutes of the setting, being substracted from 12. the remaine sheweth the houres and minutes of the rising. the whole ark or length of the day, being substracted from 24. the rest sheweth the length of the night (that is to say) from Sunne setting, to Sunne rising.

As for Example.

The 15. of Januarie, I finde in the Kalender the length of the daie to be 8. houres. 30. minutes, which being diuided, the halfe thereof is 4 houres 15. minutes, the Sunnes setting that daie: this 4. houres 15. minutes, substracted from 12. resteth 7. houres 45. minutes, which is the houre of the Sunnes rising: substract 8. houres 30. minutes the whole length of the daie, out of 24. rest 15. houres. 30. minutes, which is the length of the night that day of the moneth.

The Kalender.

Dais.	Januarie.		Length of the daie.	Dais.	Februarie.		Length of the daie.
1	a	New yeres day.	7 25 a	1	d	Fast.	9 28 e
2	b	Dcta. Stephen.	7 55 b	2	e	Purifi. of Mary	9 32 f
3	c	Dcta. John.	7 58 c	3	f	Blase Martyr.	9 36 g
4	d	Dcta. Innocēt.	8 0 d	4	g	Gilbert confel.	9 40 h
5	e	Depo. of Edw.	8 3 e	5	a	Agathe virgin.	9 44 i
6	f	Twelfth daie.	8 6 f	6	b	Dozothie virg.	9 48 k
7	g	Felix & Janu.	8 8 g	7	c	Angulle.	9 52 l
8	a	Lucian Priest.	8 11 h	8	d	Sallamon.	9 56 m
9	b	Joice Virgin.	8 14 i	9	e	Sun in Pisces.	10 0 n
10	c		8 16 k	10	f	Scollastica.	10 4 o
11	d	Solin Aquaris.	8 18 l	11	g	Soother bishop.	10 8 p
12	e	Atlas.	8 20 m	12	a	Cufrase virgin	10 10 q
13	f	Willarie Bish.	8 24 n	13	b		10 14 r
14	g	Felicia.	8 26 o	14	c	Valentine.	10 18 s
15	a	Maurice.	8 30 p	15	d		10 22 t
16	b	Barcell.	8 32 q	16	e	Julian virgin.	10 26 u
17	c	Depo. of Anth.	8 36 r	17	f	Germaine.	10 30 v
18	d	Prisca virgin.	8 40 t	18	g	Huge Bishop.	10 34 u
19	e	Moltane bish	8 42 v	19	a	Simeon.	10 38 t
20	f	Fabian & Seb.	8 46 t	20	b	Philozed.	10 42 v
21	g	Agnes virgin.	8 50 v	21	c	Lxxix. Martirs	10 46 z
22	a	Vincent mart.	8 52 u	22	d	Peters chaires	10 50 e
23	b	Timothe.	8 56 r	23	e	Fast.	10 54 ft
24	c	Emerice.	9 0 v	24	f	Mathie Apost.	10 58 a
25	d	Comu. of Paul.	9 4 z	25	g	Inuent. Paule	11 2 b
26	e	Policarp. mar.	9 6 e	26	a	Pestoz.	11 7 c
27	f	Chyloft. doctor	9 10 ft	27	b	Alexander.	11 12 d
28	g	Theoder priest	9 14 a	28	c	Augustine.	11 16 e
29	a	Walerie bishop	9 18 b				
30	b	Barold queene	9 22 c				
31	c	Saturn & Alice.	9 26 d				

The Kalender.

March.			the daie.			April.			the daie.		
Dates.				Length of		Dates.				Length of	
1	d	David.	11	24	f	1	g	Gilbard.	13	30	k
2	e	Chadde.	11	28	g	2	A	Marie Egypt.	13	34	l
3	f	Paurice.	11	32	h	3	b	Richard Bish.	13	38	m
4	g	Adrian.	11	36	i	4	c	Ambrose.	13	42	n
5	A	Focas & Euse.	11	40	k	5	d	Wincent.	13	46	o
6	b	Wiet & Wenin.	11	44	l	6	e	Sextus.	13	50	p
7	c	Perpetu.	11	48	m	7	f	Euphemie.	13	52	q
8	d	Depo. of Felix.	11	52	n	8	g	Dionisies.	13	56	r
9	e	Forty martirs	11	56	o	9	A	Perpetuus.	14	0	s
10	f	Agapit.	12	0	p	10	b	Apolinia.	14	2	t
11	g	Sunne in Aries	12	4	q	11	c	Sun in Taurus.	14	4	u
12	A	Gregorie bish.	12	8	r	12	d	Sother.	14	8	v
13	b	Theodoze.	12	12	s	13	e	Marcus.	14	12	w
14	c	Candide.	12	16	t	14	f	Tiburtie.	14	16	x
15	d	Longine.	12	20	u	15	g	Osmond.	14	20	y
16	e	Hilla & Jonase	12	24	v	16	A	Widozie.	14	24	z
17	f	Gertude.	12	28	u	17	b	Anisette.	14	28	a
18	g	Edward king.	12	32	r	18	c	Cluthering.	14	32	b
19	A	Iose. Pa. hous.	12	46	v	19	d	Alphege.	14	34	c
20	b	Euthburt.	12	40	z	20	e	Widoz.	14	38	d
21	c	Benedict.	12	44	a	21	f	Simon.	14	42	e
22	d	Afrodose.	12	48	ft	22	g	Sother.	14	46	d
23	e	Theodoze.	12	54	a	23	A	George Mart.	14	50	e
24	f	Fast.	12	58	b	24	b	Wilfride.	14	54	f
25	g	Annū. of Mary	12	2	c	25	c	Marke Euang.	14	56	g
26	A	Castor marty.	13	6	d	26	d	Clete.	15	0	h
27	b	Mercianie.	13	10	e	27	e	Anastasi.	15	4	i
28	c	Rupert.	13	14	f	28	f	Vitales.	15	8	k
29	d	Widozine.	13	18	g	29	g	Peter of Pala.	15	10	l
30	e	Quirine.	13	22	h	30	A	Dep. of Erken	15	14	m
31	f	Adelme.	13	26	i						

The Kalender.

Maie.			Iune.		
Dates.		Length of the daie.	Dates.		Length of the daie.
1	b Philip & Iacob	15 18 n	1	e Pichomedes.	16 24 r
2	c Athanasius.	15 20 o	2	f Parcell.	16 25 f
3	d Anna. of y crosse	15 24 p	3	g Crasimus.	16 26 s
4	e Christopher.	15 28 q	4	A Petrocus.	16 27 t
5	f Godarde.	15 29 r	5	b Beniface.	16 28 b
6	g John port Lat.	15 30 f	6	c Melon.	16 28 u
7	A John of Beuer	15 34 s	7	d Paule Bishop	16 29 r
8	b Aper. of Picha.	15 36 t	8	e Tral. of Edm.	16 30 y
9	c Trans. of Pic.	15 40 b	9	f Ianua. confess.	16 30 z
10	d Gordian.	15 42 u	10	g Tra. of Wollf.	16 30 e
11	e Anthonie.	15 44 r	11	A Barnard Apo.	16 30 ff
12	f Sun in Gemini	15 46 y	12	b Sun in Cancer.	16 30 a
13	g Verusius.	15 49 i	13	c Anthonie.	16 30 b
14	A Boniface mart	15 52 e	14	d Basilides.	16 30 c
15	b Ildoze.	15 54 ff	15	e Alice and Hode	16 29 d
16	c Discoz. mart.	15 57 a	16	f Tran. of Rich.	16 28 e
17	d Dunstane.	15 0 b	17	g Botulphe.	16 28 f
18	e Bernardine.	16 2 c	18	A Mar. & Marsel.	16 27 g
19	f Aquilla.	16 5 d	19	b Gervasius.	16 27 h
20	g Dunston.	16 8 e	20	c Tran. of Edw.	16 26 i
21	A Barnardine.	16 10 f	21	d Walburge.	16 25 k
22	b Helena queene	16 12 g	22	e Albane.	16 24 l
23	c Desideri.	16 14 h	23	f Fast.	16 23 m
24	d Serule.	16 15 i	24	g Iohn Baptist.	16 22 n
25	e Urbane.	16 16 k	25	A Amandi.	16 20 o
26	f Adelme confess	16 18 l	26	b Iohn & Paule.	16 19 p
27	g Bede Priest.	16 19 m	27	c Creescence.	16 18 q
28	A Germaine.	16 20 n	28	d Fast.	16 16 r
29	b Cozone.	16 21 o	29	e Peter & Paule.	16 15 f
30	c Felix.	16 22 p	30	f Com. of Paule	16 14 s
31	d Petronill.	16 23 q			

The Kalender.

Iulie.				August.			
Daie.		Length of the daie,		Daie.		Length of the daie,	
1	g	Octa. of Iohn.	16 12 t	1	c	Lamas.	14 46 v
2	A	Visit. of Marie.	16 10 b	2	d	Stephen.	14 42 i
3	b	Trā. of Thom.	16 8 u	3	e	Inuent. Sept.	14 38 e
4	c	Tran. of Mart.	16 5 r	4	f	Iustine.	14 34 st
5	d	CCC. virgins.	16 3 v	5	g	Festū Pinis.	14 32 a
6	e	Martalis.	16 2 i	6	A	Trāst. of Chz.	14 28 b
7	f	Zenone mart.	16 0 e	7	b	Feast of Iesus.	14 24 c
8	g	Depo. of Grem.	15 57 st	8	c	Ciriacke.	14 20 d
9	A	Cypile Bishop	15 54 a	9	d	Roman Mart.	14 16 e
10	b	Dog daies begi	15 52 b	10	e	Laurence mar.	14 12 f
11	c	Seuen brethre	15 49 c	11	f	Cutbert.	14 8 g
12	d	Paboꝝ & Felix	15 46 d	12	g	Clarie.	14 4 h
13	e	Sunne in Leo.	15 44 e	13	A	Viplit.	14 0 i
14	f	Reuell.	15 42 f	14	b	Sun in Virgo.	13 56 k
15	g	Transl. Suite.	15 40 g	15	c	Assump. Marie	13 52 l
16	A	Trāst. Dinod.	15 36 h	16	d	Koch mart.	13 50 m
17	b	Katherine.	15 34 i	17	e	Octa. Laurence.	13 46 n
18	c	Arnulfe.	15 30 k	18	f	Leus.	13 42 o
19	d	Rufian & Just.	15 28 l	19	g	Barnerd.	13 38 p
20	e	Margaret.	15 24 m	20	A	Dog daies end.	13 34 q
21	f	Pyrede.	15 20 n	21	b	Pyzinate.	13 30 r
22	g	Marie Magde.	15 18 o	22	c	Timothe.	13 26 s
23	A	a. olinaries.	15 14 p	23	d	Fast.	13 22 t
24	b	Fast.	15 10 q	24	e	Barthel. Apost.	13 18 u
25	c	Iames Apostle.	15 8 r	25	f	Lewes king.	13 14 v
26	d	Anne mot. Ma.	15 4 s	26	g	Seuerne.	13 10 u
27	e	Wii. Sleepers.	15 0 f	27	A	Rufine martir	13 8 r
28	f	Sampson.	14 58 t	28	b	Augustine bish	13 6 v
29	g	Martha.	14 56 b	29	c	Jon beheaded.	13 2 i
30	A	Abdon & Sen.	14 54 u	30	d	Felix & Andas	12 58 e
31	b	German.	14 50 r	31	e	Cutburt.	12 54 st

The Kalender.

September.			October.		
Dates.		Length of the daie.	Dates.		Length of the daie.
1	f	Giles.	12	48	a
2	g	Anthonie mar.	12	44	b
3	a	Lupus Bishop	12	40	c
4	b	Trans. Cuthb.	12	36	d
5	c	Bertine.	12	32	e
6	d	Eugenius.	12	28	f
7	e	Nati. Eliz. Reg.	12	24	g
8	f	Natiu. of Mary	12	20	h
9	g	Gozgonie.	12	16	i
10	a	Siluius Bish.	12	12	k
11	b	Protoc. & Hist.	12	8	l
12	c	Martinian.	12	4	m
13	d	Sunne in Libra	12	0	n
14	e	Holie Crosse.	11	56	o
15	f	Whiletus.	11	52	p
16	g	Edith.	11	48	q
17	a	Lambert.	11	44	r
18	b	Wict. and Coz.	11	40	s
19	c	Januarie mar.	11	36	t
20	d	Falt.	11	32	u
21	e	Mathew Apo.	11	28	v
22	f	Maricius.	11	24	w
23	g	Tecla virgin.	11	20	x
24	a	Andochius.	11	16	y
25	b	Ferminie.	11	12	z
26	c	Sipri & Just.	11	8	a
27	d	Cosme & Da.	11	4	b
28	e	Crepidus.	10	58	c
29	f	Machaol Arch.	10	54	d
30	g	Dierome priest	10	50	e
1	a	Memigius.	10	46	f
2	b	Leodegarie.	10	42	g
3	c	Candide.	10	38	h
4	d	Fraunces.	10	34	i
5	e	Apoline.	10	30	j
6	f	Faith.	10	26	k
7	g	Martine.	10	22	l
8	a	Pellagius.	10	18	m
9	b	Cereon & Wic.	10	14	n
10	c	Picasius.	10	10	o
11	d	Edward king.	10	6	p
12	e	Adozant.	10	2	q
13	f	Calixtes.	10	0	r
14	g	Sun in Scorpio.	9	56	s
15	a	Wolfran.	9	52	t
16	b	Mich. of y mouit	9	48	u
17	c	Ethelozed.	9	44	v
18	d	Luke Euangel.	9	40	w
19	e	Fredel wide.	9	36	x
20	f	Austerbert.	9	32	y
21	g	xi M. virgins.	9	28	z
22	a	Mary Salamo	9	24	a
23	b	Romaine.	9	20	b
24	c	Maglozie.	9	16	c
25	d	Crispine.	9	12	d
26	e	Ursula.	9	8	e
27	f	Falt.	9	4	f
28	g	Simon & Iude.	9	0	g
29	a	Parfusus.	9	0	h
30	b	German.	8	56	i
31	c	Falt.	8	52	j

The Kalender.

Daies.	November.		Length of the daie.	Daies.	Decembee.		Length of the daie.
1	d	All Saincts.	8 50 h	1	f	Elegius.	7 36 l
2	e	All Soules.	8 46 i	2	g	Libane.	7 35 m
3	f	Wenefride.	8 42 k	3	A	Dep. Olmond.	7 34 n
4	g	Amantius.	8 40 l	4	b	Barbara.	7 33 o
5	A	Lete Priest.	8 36 m	5	c	Saua.	7 32 p
6	b	Leonard.	8 32 n	6	d	Nicholas bish.	7 32 q
7	c	Wilbode.	8 30 o	7	e	Ambrose.	7 31 r
8	d	Four crown.	8 26 p	8	f	Conc. of Marie	7 30 s
9	e	Theodore.	8 24 q	9	g	Cyprian.	7 30 t
10	f	Benet.	8 20 r	10	A	Eulalie.	7 30 u
11	g	Martine Bish.	8 18 s	11	b	Damase.	7 30 v
12	A	Waterne.	8 16 t	12	c	Sun in Capric.	7 30 w
13	b	Sunne in Sagit.	8 14 u	13	d	Luce virgin.	7 30 x
14	c	Transl. Erken	8 11 v	14	e	Picatus Bish	7 30 y
15	d	Dachute.	8 8 w	15	f	Valerius.	7 31 z
16	e	Dep. Edmond	8 6 x	16	g	Lazarus confe.	7 32 a
17	f	Init. Reg. Eliza.	8 3 y	17	A	Disapientie.	7 32 b
18	g	Octa. Marie.	8 0 z	18	b	Gracian.	7 33 c
19	A	Eliza. marty.	7 58 a	19	c	Wenefia virg.	7 34 d
20	b	Edmond king.	7 55 b	20	d	Fast.	7 35 e
21	c	Present. Mary	7 52 c	21	e	Thomas Apost	7 36 f
22	d	Cecill virgin.	7 50 d	22	f	XXX. Martirs.	7 37 g
23	e	Clement.	7 47 e	23	g	Victor.	7 38 h
24	f	Grifogon.	7 45 f	24	A	Fast.	7 40 i
25	g	Katherine.	7 44 g	25	b	Christmas daie	7 41 j
26	A	Line.	7 42 h	26	c	Stephen martir	7 42 k
27	b	Agricola.	7 41 i	27	d	Iohn Euangeli.	7 44 l
28	c	Rufus martir.	7 40 j	28	e	Innocents daie.	7 45 m
29	d	Satu. Fast	7 38 k	29	f		7 46 n
30	e	Andrew Apo.	7 37 l	30	g	Trā. of James	7 48 o
				31	A	Siluester.	7 50 p

A Table wherein is shewed at all times, what signe the Moone shall be in, by the Prime and helpe of the letters in the last Colome of the Kalender, as by example is heereafter shewed.

The prime.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Aries.	v	n	c	b	l	ff	f	h	z	p	c	u	m	a	s	i	e	q	f
Aries.	z	o	d	u	m	a	s	i	e	q	f	r	n	b	t	k	ff	r	g
Aries.	e	p	e	r	n	b	t	k	ff	r	g	y	o	c	b	l	a	f	b
Taurus.	ff	q	f	y	o	c	b	l	a	f	h	z	p	d	u	m	b	s	i
Taurus.	a	r	g	z	p	d	u	m	b	s	i	e	q	e	r	n	c	t	k
Gemini.	b	f	h	e	q	e	r	n	c	t	k	ff	r	f	y	o	d	b	l
Gemini.	c	s	i	ff	r	f	y	o	d	b	l	a	f	g	z	p	c	u	m
Cancer.	d	t	k	a	f	g	z	p	e	u	m	b	s	h	e	q	f	r	n
Cancer.	e	b	l	b	s	h	e	q	f	r	n	c	t	i	ff	r	g	y	o
Leo.	f	u	m	c	t	i	ff	r	g	y	o	d	b	k	a	f	h	z	p
Leo.	g	r	n	d	b	k	a	f	h	z	p	e	u	l	b	s	i	e	q
Leo.	h	y	o	c	u	l	b	s	i	e	q	f	r	m	c	t	k	ff	r
Virgo.	i	z	p	f	r	m	c	t	k	ff	r	g	y	n	d	b	l	a	f
Virgo.	k	e	q	g	y	n	d	b	l	a	f	h	z	o	e	u	m	b	s
Libra.	l	ff	r	h	z	o	e	u	m	b	s	i	e	p	f	r	n	c	t
Libra.	m	a	l	i	e	p	f	r	n	c	t	k	ff	q	g	y	o	d	b
Scorpio.	n	b	s	k	ff	q	a	y	o	d	b	l	a	r	h	z	p	e	u
Scorpio.	o	c	t	l	a	r	h	z	p	e	u	m	b	f	t	e	q	f	r
Sagittarius.	p	d	b	m	b	f	i	e	q	f	r	n	c	s	k	ff	r	g	y
Sagittarius.	q	e	u	n	c	s	k	ff	r	g	y	o	d	t	l	a	f	b	z
Sagittarius.	r	f	r	o	d	t	l	a	f	h	z	p	e	b	m	b	s	i	e
Capricorne.	f	g	y	p	e	b	m	b	s	i	e	q	f	u	n	c	t	k	ff
Capricorne.	s	h	z	q	f	u	n	c	t	k	ff	r	g	r	o	d	b	l	a
Aquarius.	t	i	e	r	g	r	o	d	b	l	a	f	h	y	p	e	u	m	b
Aquarius.	b	k	ff	f	h	y	p	e	u	m	b	s	i	z	q	f	r	n	c
Pisces.	u	l	a	s	i	z	q	f	r	n	c	t	k	e	r	g	y	o	d
Pisces.	r	m	b	t	k	e	r	g	y	o	d	b	l	ff	f	h	z	p	e
Pisces.	y	n	c	b	l	ff	f	h	z	p	e	r	m	a	s	i	e	q	f


The vse of the Table.



First goe to the Kalender, to the date of the month which ye desire to know what signe the Moone is in: And in the last Colome of that moneth, vnder the Moone, in the head thereof, directlie against the same date, you shall finde one of the 24. letters, which you shall beare in memorie, and retourne to the Prime of the present yere, in the head of this Table, descending downe by the Colome of the same Prime, vntill ye finde the letter ye beare in memorie of the Kalender, and directlie against this square, or letter in the first Colome ye shall finde named the signe that the Moone then occupieth.

As for example.

The yeare 1581. the 12. of June, I desire to know what signe the Moone is in, I goe to the Kalender to that moneth of June to the 12. date, against which in the last Colome, vnder the Moone, in the head of the moneth I finde the letter a, which bearing in memorie, I returne to this Table, to the Prime of this yere, which I seeke in the Table of the moueable feastes, and finde to be 5. where I enter the Table, in the head, and in the sixth Colome, descending downe vntil I finde (a) against which to the left hand, in the first colome, I finde Scorpio, which sheweth the Moone to be in that signe.



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The third Table followeth the Kalender, by the which

is alwaies found, what signe the Moone is in, with the help of the letters in the Kalender, also by the saide Kalender is shewed the houre and minute of the length of the daie, for euerie daie of the yere, for the eleuation of the Pole 52. degrees.

A Table to know what Planet rules anie houre either by daie or night.

A Table to know the length of the Planitarie houre, from the shortest daie and longest night, till the longest daie and shortest night.

A Chapter of the longitude and declination of 32. notable fixed starres verie necessarie for Nauigation, with Tables of their shining, and at what point of your Compasse they doo both rise and set: and also Tables for euerie moneth of the yeere, declaring at what houre and minute they be South, running from the first daie of the moneth, to the fifteenth, & from the fifteenth, to the last daie, and will continue these 100. yeeres without much error.

A Table to knowe the rising and setting of these Starres, by what point of the Compas, & how many hours they be aboute our Horizon, the Pole being raised 51. or 52. degrees.

A Table of the fixed Starres.

A Table of the true place of the Sunne.

The Table of the Equation of the Sunne.

The Chapter of the Declination of the Sunne.

A Table to know what Planet rules anie houre,
either of daie or night for euer.

Gouernours of the daie.	Sundae.	Mundaie.	Tuesdaie.	Wednesdaie.	Thursdaie.	Fridaie.	Satursdaie.	H. H. the night.
Sol.	1	12	9	0	10	0	11	Iupiter.
Venus.	2	0	10	0	11	1	12	Mars.
Mercurie.	3	0	11	1	12	2	0	Sol.
Luna.	4	1	12	2	0	3	0	Venus.
Saturne.	5	2	0	3	0	4	1	Mercurie.
Iupiter.	6	3	0	4	1	5	2	Luna.
Mars.	7	4	1	5	2	6	3	Saturne.
Sol.	8	5	2	6	3	7	4	Iupiter.
Venus.	9	6	3	7	4	8	5	Mars.
Mercurie.	10	7	4	8	5	9	6	Sol.
Luna.	11	8	5	9	6	10	7	Venus.
Saturne.	12	9	6	10	7	11	8	Mercurie.
Iupiter.	0	10	7	11	8	12	9	Luna.
Mars.	0	11	8	12	9	0	10	Saturne.

The vse of this Table is thus.

Vnder the daie of your request, seeke the houre that ye desire, then on the left side right there against shal ye see the Planet that gouernes that houre by daie, and at the right side the Planet that rules it by night, as thus. On thursdaie the third houre of the daie rules ☉ and the 8. houre of the night gouernes ♃ and so of the rest, for it is plaine inough.

And if ye desire to know what Planet rules anie houre of the night, ye may see it by the same Table, for the night is ruled by the same Planet that rules the daie.

A Table to know the length of the Planetarie houre, from the shortest daie and longest night, til the longest daie & shortest night.

M	0	12	24	36	48
H	H.M.	H.M.	H.M.	H.M.	H.M.
7	0. 35	0. 36	0. 37	0. 38	0. 39
8	0. 40	0. 41	0. 42	0. 43	0. 44
9	0. 45	0. 46	0. 47	0. 48	0. 49
10	0. 50	0. 51	0. 52	0. 53	0. 54
11	0. 55	0. 56	0. 57	0. 58	0. 59
12	1. 0	1. 1	1. 2	1. 3	1. 4
13	1. 50	1. 6	1. 7	1. 8	1. 9
14	1. 29	1. 11	1. 12	1. 13	1. 14
15	1. 25	1. 16	1. 17	1. 18	1. 19
16	1. 20	1. 21	1. 22	1. 23	1. 24
17	1. 20	1. 26	1. 27	1. 28	1. 29

The vse is this.

Know the length of the daie or night, that ye require by the Table proceeding in houres and minutes, & there with enter this Table, the houre at the side, & the nearest minute at the head, and then descend right against your houre, and there in the common angle shall ye finde the houre & minute, or minutes onelie that the Planet raines by the houres of the clockes.

As for example.

The 12. of June the daie is 16. houres 20. minutes, wherewith I enter this Table as is shewed, & in the angle I finde 1. houre 22. minutes, which sheweth y^e a planet that day rules an houre & a quarter & 2. minutes of the clockes. Also for y^e same night I find it to be but 7. houres 48. minutes, wherewith I enter into this Table with 7. at the side, and 36. at the head (for that is nearest) and in the common angle I finde but onelie 38. minutes, which shew that a Planet in that night rules but halfe an houre and 8. minutes of the clockes, and so of the rest.

The Chapter is of the longitude and declination of 32. notable fixed starres verie necessarie for Nauigation, with Tables of their shining, and at what point of your Cum- passe they doo both rise and set: and also Tables for eue- rie moneth of the yeere, declaring at what houre and minute they be South, running from the first daie of the moneth, to the fifteenth, and from the fifteenth, to the last daie, and will continue these 100. yecres without much error.



Doe thinke it conuenient for diuerse con- siderations, to shew the longitude and de- clination of certaine of the most notablest fixed Starres that are neere vnto the Equinotiall, to the number of 32. of them, which are verie necessarie for Nauigati- on in diuerse respects, as this: If you bee vnto the North partes where the North Pole is raised more then 50. or 60. degrees, then the North Starre is too high to bee ob- serued or taken with the crosse staffe (as maister Bourne hath declared in his sixt Chapter of his Regiment for the Sea) and it may chance so that in the daie the Sun is not to bee seene at none, and then these Starres may serue your turne.

And furthermoze they be verie good for them that haue occasion to trauaile beyond the Equinotiall, where the North Pole is vnder the Horizon, in vsing their declina- tion as they doe the Sunnes declination in all pointes, (as doth appeare in the 7. 8. and 9. chapters of M. Bournes Regiment.) And mozeouer they be verie necessarie for Sea faring men to knowe the houres of the night, both by their beeing vpon the Meridian, & also by their rising and setting you may knowe the true time of their rising

If the pole bee raised more the 50. or 60. degrees, it is to high to be ob- serued by the crosse staffe.

These Starres vvil serue beyond the Equi- notiall.

and setting, you may knowe the true time of their rising
and setting in euerie latitude by their declination from
the Equinoctiall, whether they decline to the South parts
or North partes (as is declared by the declination of the
Sunne in the 11. Chapter of M. Bournes Regiment.)

The order
of the
Table fol
lowing.

And futhermore by anie of these Starres you maye
trie the Variation of your Cumpasse by night, &c.
Now shall followe the Table of all these Starres. The
first row of this Table containeth the names of the stars:
The second, the signes, what they be in longitude: The
third the degrees in the signes: The fourth, the minutes
belonging therunto: The fifth, the degrees of declination:
The sixt, the odde minutes belonging therunto. The sea-
uenth sheweth toward what place they decline, by Let-
ters, of which S. signifieth Septentrional, or North decli-
nation. M. signifieth Meridional, or South declination,
as in the Table doth appeare. The eight doth shew no-
thing but the bignes of the Starres. Now followeth the
Table.

A

And futhermore they be deuise good for them that have
occasion to trauele beyond the Equinoctiall, where the
North pole is vnder the Horizon, in vnder their backing
from as they see the Sunnes declination in all points
(as doth appeare in the 7. and 8. chapters of M. Bournes
Regiment.) And moreover they be deuise necessary for
seafaring men to knowe the hours of the night, both
by their setting upon the Horizon, & also by their rising
and setting you may knowe the true time of their rising

A Table of the fixed Starres.

The names of the Starres.	Signes	Longit. deg.mi.	Decl. deg.mi.	To what part they decline.	Bignes of the stars.
Whales backe.	Aries.	6. 6	12 11	M	second bignesse.
Whales bellie.	Aries.	16 2	12 20	M	second bignesse.
Kammes hozne.	Aries.	27 42	17 19	S	third bignesse.
Kammes head.	Taurus.	1. 46	21 16	S	third bignesse.
Bulls eye.	Gemini	3. 42	15 42	S	great starres.
Oxions left foote.	Gemini.	10 12	9. 14	M	a great starre.
Oxions left shoulder.	Gemini.	11. 26	4. 37	S	a starre of the
First Oxions girdle.	Gemini.	16 22	1. 19	M	second light both.
Oxions right shoulder.	Gemini.	23 6	6. 18	S	a great starre.
Great dogge.	Cancer.	8. 40	15 30	M	a very great star.
Lesser dogge.	Cancer.	20 10	6. 4	S	a great starre.
Brightest in Hydra.	Leo.	21. 2	4. 47	M	second bignesse.
Lions necke.	Leo.	23 16	21 59	S	second bignesse.
Lions heart.	Leo.	23 32	14 3	S	a great starre.
Lions backe.	Virgo.	5. 16	22 30	S	second bignesse.
Lions taile.	Virgo.	15. 32	16 46	S	a great starre.
Kauens head.	Libra.	5. 6	19 53	M	of y third bignes
Kauens wing.	Libra.	9. 36	17 8	M	both those.
Virgins spike.	Libra.	17 42	4. 54	M	a great starre.
Twirt boots thighs.	Libra.	18 6	22 9	S	a great starre.
South Balance.	Scorpio	9. 2	13 44	M	second bignesse.
North Balance.	Scorpio.	13 12	7. 33	M	second bignesse.
Scorpions heart.	Sagit.	3. 42	24 47	M	second bignesse.
Hercules head.	Sagit.	8. 42	15 20	S	third bignesse.
Serpents head.	Sagit.	15. 52	14 7	S	third bignesse.
The Eagle.	Capric.	24 51	7. 28	S	second bignesse.
Dolphins taile.	Aquar.	8. 27	10 1	S	third bignesse.
Goates taile.	Aquar.	17 22	14 13	M	third bignesse.
Water pourers leg.	Pisces.	2. 20	15 52	M	third bignesse.
Pegasus shoulder.	Pisces.	17 4	13 1	S	second bignesse.
Pegasus legge.	Pisces.	23 10	26 30	S	second bignesse.
Whales taile.	Pisces.	26 21	21 47	M	third bignesse.

How to
use the
starres de-
clination
to know
the height
of the
Pole.

The vse of this Table is this: When you haue taken the height of anie of these Stars vpon the Meridian, then looke what declination the Starre hath from the Equinoctiall: If the Starre hath North declination, then subtract or take awaie the Stars declination from y^e height: if it hath South declination, then adde or put vnto the height the Starres declination, and that will shew vnto you the height of the Equinoctiall, and then by the height of the Equinoctiall, the height of the Pole is knowne, as Maister Bourne hath declared in the 7. Chapter of the Regiment for the Sea. And now I thinke it conuenient to make a certaine Table to shew vnto you at what houre and time anie of these Stars be vpon the meridian, whereby they may the better knowe these Starres. I will also shew vnto you how long anie of these Starres doe shine or tarrie aboue the Horizon in this latitude from the Equinoctiall of London, that is at 51. or 52. degrees. And also at what point of the Cumpasse anie of these Starres doe rise or set, which will serue this 100. yeares without much errour.

A Table to knowe the rising and setting of these Starres, by what point of the Cumpas, & how many hours they be aboue our Horizon, the Pole beeing raised 51. or 52. degrees.

The Whales backe riseth East and by South, and vnto the Southwards: and shineth 10. houres & better.

The Whales bellie (in a manner) as the Whales back.

The Rammes horne riseth East North-east, and setteth West North-west: & shineth 15. houres 16. minutes.

The Rammes head riseth East North-east, and setteth West North-west: and shineth 16. houres 4. minutes.

The Bulls eie riseth nere the East North-east, and setteth nere the West North-west: and shineth 15. houres 2. minutes.

The Oxions left foote riseth nere the East & by South,
and

and setteth nere the West and by South, and shyneth 10. houres and 6. minutes.

The Orions left shoulder riseth East & to the Northwards, and setteth West and to the Northwards, and shyneth 11. houres 45. minutes.

The first in Orions girdle doth rise a little to the Southwards of the East, & setteth a little to the Southwardes of the West, and shyneth 11. houres 46. minutes.

Orions right shoulder riseth East, and vnto the Northwards, and setteth West, and vnto the Northwards, and shyneth 13. houres 12. minutes.

The great dogge riseth East Southeast, & setteth West Southwest, and shyneth 9. houres.

The lesser dogge riseth East & vnto the Northwards, and setteth West and vnto Northwards, and shyneth 13. houres 10. minutes.

The brightest in Hydra riseth East and vnto the Southward, and setteth West and vnto Southwards: & shyneth 11. houres and 7. minutes.

The Lions neck riseth East North East, & to the Northwards, and setteth West North west, and to the Northwards, and shyneth 16. houres 16. minutes.

The Lyons heart riseth nere the East Northeast, and setteth nere the West North west, and shyneth 14. houres 50. minutes.

The Lyons backe riseth nere the Northeast and by East, and setteth nere the North west and by West, and shyneth 16. houres. 26. minutes.

The Lyons taile riseth nere the East Northeast, and setteth nere the West North west, and shyneth 15. houres 12. minutes.

The Ravens head riseth nere the East Southeast, and setteth nere the West Southwest, and shyneth 8. houres 12. minutes.

The Ravens wing riseth nere the East Southeast, and setteth nere the West Southwest, & shyneth 8. hours 50. minutes.

The virgins spike riseth East and to the Southwards,
and setteth West and to the Southwards, and shineth 11.
houres 4. minutes.

Betweene boots thighs, riseth néere the Northeast and
by East, and setteth néere the Northwest, and by West,
and shineth 16. houres 20. minutes.

The South balance riseth néere the East Southeast,
and setteth néere the West Southwest: and shineth 9.
houres 36. minutes.

The North balance riseth néere the East & by South,
and setteth néere the West and by South, and shineth 10.
houres 38. minutes.

The Scorpions heart riseth néere the Southeast and
by East, and setteth néere the Southwest & by West, and
shineth 7. houres 5. minutes.

Hercules head riseth néere the East Northeast, and set-
teth néere the West Northwest, and shineth 14. hours 56.
minutes.

The Serpents head riseth néere the East Northeast,
and setteth néere the West Northwest, and shineth 14.
houres 40. minutes.

The Eagle riseth néere the East and by North, and
setteth néere the West and by North, & shineth 13. houres
24. minutes.

The Dolphins taile riseth East and by North, and set-
teth West and by North, and shineth 15. houres 57. mi-
nutes.

The Goates taile riseth néere the East Southeast,
and setteth West Southwest, and shineth 9. houres 20.
minutes.

The Water powzers leg riseth néere the East South-
east, and setteth West Southwest, and shineth 8. houres,
54. minutes.

Pegasus shoulders riseth néere the East Northeast, and
setteth néere the West Northwest, and shineth 14. houres
32. minutes.

The 11.
Chapter
of Master
Bournes
Regiment
for the
sea, vvill
shew how
long anie
of these
stars vvill
shine in
all places.

Pegasus

A Table of the fixed Starres.

These starres being South from Ianu. from the Febru. from the Febru. frō the
the first day of Ianu. vnto the 15 15. to the last. 15. vnto the 15. 15. to the last

1	Whales backe.	5. 20	E	1	4. 20	DA	1	3. 20	DA	1	2. 20	DA
2	Whales bellie.	5. 54	E	2	4. 54	DA	2	3. 54	DA	2	2. 54	DA
3	Rammes horn.	6. 28	E	3	5. 28	E	3	4. 28	DA	3	3. 28	DA
4	Rammes head.	6. 45	E	4	5. 45	E	4	4. 45	DA	4	3. 45	DA
5	Bulls Eie.	8. 52	E	5	7. 52	E	5	6. 52	E	5	5. 52	DA
6	Orions left foot.	9. 23	E	6	8. 23	E	6	7. 23	E	6	6. 23	E
7	Orions left shoulder	9. 28	E	7	8. 28	E	7	7. 28	E	7	6. 28	E
8	First Orions girdle	9. 50	E	8	8. 50	E	8	7. 50	E	8	6. 50	E
9	Orions right sholder	10. 12	E	9	9. 12	E	9	8. 12	E	9	7. 12	E
10	Great dogge.	11. 4	E	10	10. 4	E	10	9. 4	E	10	8. 4	E
11	Lesser dogge.	12. 0		11	11. 0	E	11	10. 0	E	11	9. 0	E
12	Brightest in Hidra.	12. 4	M	12	11. 4	E	12	10. 4	E	12	9. 4	E
13	Lions necke.	2. 12	M	13	1. 12	M	13	12. 12	M	13	11. 12	E
14	Lions heart.	2. 13	M	14	1. 13	M	14	12. 13	M	14	11. 13	E
15	Lions backe.	3. 0	M	15	2. 0	M	15	1. 0	M	15	12. 0	
16	Lions taile.	3. 42	M	16	2. 42	M	16	1. 42	M	16	1. 42	M
17	Rauens head.	5. 2	M	17	4. 2	M	17	3. 2	M	17	2. 2	M
18	Rauens wing.	5. 19	M	18	4. 19	M	18	3. 19	M	18	2. 19	M
19	Virgins spike.	5. 51	M	19	4. 51	M	19	3. 51	M	19	2. 51	M
20	Twixt boots thighs	5. 56	M	20	4. 56	M	20	3. 56	M	20	2. 56	M
21	South Balance.	7. 16	M	21	6. 16	M	21	5. 16	M	21	4. 56	M
22	North Balance.	7. 33	MD	22	6. 33	M	22	5. 53	M	22	4. 33	M
23	Scorpions heart.	8. 54	MD	23	7. 54	MD	23	6. 54	M	23	5. 54	M
24	Hercules head.	9. 14	MD	24	8. 14	MD	24	7. 14	MD	24	6. 14	M
25	Serpents head.	9. 41	MD	25	8. 41	MD	25	7. 41	MD	25	6. 41	M
26	The Eagle.	12. 19	DA	26	11. 19	MD	26	10. 19	MD	26	9. 19	MD
27	Dolphins taile.	1. 12	DA	27	12. 12	DA	27	11. 12	MD	27	10. 12	MD
28	Goats taile.	1. 48	DA	28	12. 48	DA	28	11. 48	MD	28	10. 48	MD
29	Water pouters leg.	2. 48	DA	29	1. 48	DA	29	12. 48	DA	29	11. 48	MD
30	Pegasus shoulder.	3. 47	DA	30	2. 47	DA	30	1. 47	DA	30	12. 47	DA
31	Pegasus legge.	4. 12	DA	31	3. 12	DA	31	2. 12	DA	31	1. 12	DA
32	Whales taile.	4. 24	DA	32	3. 24	DA	32	2. 24	DA	32	1. 24	DA

Marh.

A Table of the fixed Startes

March frō the first to the 15. | March frō the 15. to the last. | April from the first to the 15. | April from the 15. to the last. | May frō the first to the 15.

1	1. 20 DA	1	11. 20 DA	1	11. 20 MD	1	10. 20 MD	1	9. 20 MD
2	1. 54 DA	2	11. 54 DA	2	11. 54 MD	2	10. 54 MD	2	9. 54 MD
3	2. 28 DA	3	1. 28 DA	3	12. 28 DA	3	11. 28 MD	3	10. 28 MD
4	2. 45 DA	4	1. 45 DA	4	12. 45 DA	4	11. 45 MD	4	10. 45 MD
5	4. 52 DA	5	3. 52 DA	5	2. 52 DA	5	1. 52 DA	5	12. 52 DA
6	5. 23 DA	6	4. 23 DA	6	3. 23 DA	6	2. 23 DA	6	1. 23 DA
7	5. 28 DA	7	4. 28 DA	7	3. 28 DA	7	2. 28 DA	7	1. 28 DA
8	5. 50 DA	8	4. 50 DA	8	3. 50 DA	8	2. 50 DA	8	1. 50 DA
9	6. 12 E	9	5. 12 DA	9	4. 12 DA	9	3. 12 DA	9	2. 12 DA
10	7. 4 E	10	6. 4 DA	10	5. 4 DA	10	4. 4 DA	10	3. 4 DA
11	8. 0 E	11	7. 0 E	11	6. 0 DA	11	5. 0 DA	11	4. 0 DA
12	8. 4 E	12	7. 4 E	12	6. 4 DA	12	5. 4 DA	12	4. 4 DA
13	10. 12 E	13	9. 12 E	13	8. 12 E	13	7. 12 DA	13	6. 12 DA
14	10. 13 E	14	9. 13 E	14	8. 13 E	14	7. 13 DA	14	6. 13 DA
15	11. 0 E	15	10. 0 E	15	9. 0 E	15	8. 0 E	15	7. 0 DA
16	11. 42 E	16	10. 42 E	16	9. 42 E	16	8. 42 E	16	7. 42 DA
17	1. 2 M	17	12. 2 M	17	11. 2 E	17	10. 2 E	17	9. 2 E
18	1. 19 M	18	12. 19 M	18	11. 19 E	18	10. 19 E	18	9. 19 E
19	1. 51 M	19	12. 51 M	19	11. 51 E	19	10. 51 E	19	9. 51 E
20	1. 56 M	20	12. 56 M	20	11. 56 E	20	10. 56 E	20	9. 56 E
21	3. 16 M	21	2. 16 M	21	1. 16 M	21	12. 16 M	21	11. 16 E
22	3. 33 M	22	2. 33 M	22	1. 33 M	22	12. 33 M	22	11. 33 E
23	4. 54 M	23	3. 54 M	23	2. 54 M	23	1. 54 M	23	12. 54 M
24	5. 14 M	24	4. 14 M	24	3. 14 M	24	2. 14 M	24	1. 14 M
25	5. 41 M	25	4. 41 M	25	3. 41 M	25	1. 41 M	25	3. 41 M
26	8. 19 MD	26	7. 19 MD	26	6. 19 MD	26	5. 19 MD	26	4. 19 M
27	9. 12 MD	27	8. 12 MD	27	7. 12 MD	27	6. 12 MD	27	5. 12 MD
28	9. 48 MD	28	8. 48 MD	28	7. 48 MD	28	6. 48 MD	28	5. 48 MD
29	10. 48 MD	29	9. 48 MD	29	8. 48 MD	29	7. 48 MD	29	6. 48 MD
30	11. 47 MD	30	10. 47 MD	30	9. 47 MD	30	8. 47 MD	30	7. 47 MD
31	12. 12 DA	31	11. 22 MD	31	10. 12 MD	31	9. 12 MD	31	8. 12 MD
32	12. 24 DA	32	11. 24 MD	32	10. 24 MD	32	9. 24 MD	32	8. 24 MD

31.

May.

A Table of the fixed Starres.

May from the 15. to the last. | June from the first to the 15. | June from the 15. to the last. | Iulie from the first to the 15. | Iulie from the 15. to the last.

1	8. 20 MD	1	7. 20 MD	1	6. 20 MD	1	5. 20 MD	1	4. 20 M
2	8. 54 MD	2	7. 54 MD	2	5. 54 MD	2	5. 54 MD	2	4. 54 MD
3	9. 28 MD	3	8. 28 MD	3	7. 28 MD	3	6. 28 MD	3	5. 28 MD
4	9. 45 MD	4	8. 45 MD	4	7. 45 MD	4	6. 45 MD	4	5. 45 MD
5	11. 52 MD	5	10. 52 MD	5	9. 52 MD	5	8. 52 MD	5	7. 52 MD
6	12. 23 DA	6	11. 23 MD	6	10. 23 MD	6	9. 23 MD	6	8. 23 MD
7	12. 28 DA	7	11. 28 MD	7	10. 28 MD	7	9. 28 MD	7	8. 28 MD
8	12. 50 DA	8	11. 50 MD	8	10. 50 MD	8	9. 50 MD	8	8. 50 MD
9	1. 12 DA	9	12. 12 DA	9	11. 12 MD	9	10. 12 MD	9	9. 12 MD
10	2. 4 DA	10	1. 4 DA	10	12. 4 DA	10	11. 4 MD	10	10. 4 MD
11	3. 0 DA	11	2. 0 DA	11	1. 0 DA	11	12. 0	11	11. 0 MD
12	3. 4 DA	12	2. 4 DA	12	1. 4 DA	12	12. 4 DA	12	11. 4 MD
13	5. 12 DA	13	4. 12 DA	13	3. 12 DA	13	2. 12 DA	13	1. 12 DA
14	5. 13 DA	14	4. 13 DA	14	3. 13 DA	14	2. 13 DA	14	1. 13 DA
15	6. 0 DA	15	5. 0 DA	15	4. 0 DA	15	3. 0 DA	15	2. 0 DA
16	6. 42 DA	16	5. 42 DA	16	4. 42 DA	16	3. 42 DA	16	2. 42 DA
17	8. 2 DA	17	7. 2 DA	17	6. 2 DA	17	5. 2 DA	17	4. 2 DA
18	8. 19 DA	18	7. 19 DA	18	6. 19 DA	18	5. 19 DA	18	4. 19 DA
19	8. 51 DA	19	7. 51 DA	19	6. 51 DA	19	5. 51 DA	19	4. 51 DA
20	8. 56 DA	20	7. 56 DA	20	6. 56 DA	20	5. 56 DA	20	4. 56 DA
21	10. 16 E	21	9. 16 DA	21	8. 16 DA	21	7. 16 DA	21	6. 16 DA
22	10. 33 E	22	9. 33 DA	22	8. 33 DA	22	7. 33 DA	22	6. 33 DA
23	11. 54 E	23	10. 54 E	23	9. 54 DA	23	8. 54 DA	23	7. 54 DA
24	12. 14 M	24	11. 14 E	24	10. 14 E	24	9. 14 E	24	8. 14 E
25	12. 41 M	25	11. 41 E	25	10. 41 E	25	9. 41 E	25	8. 41 E
26	3. 19 M	26	2. 19 M	26	1. 19 E	26	12. 19 M	26	11. 19 E
27	4. 12 MD	27	3. 12 M	27	2. 12 M	27	1. 12 M	27	12. 12 E
28	4. 48 MD	28	3. 48 M	28	2. 48 M	28	2. 48 M	28	12. 48 M
29	5. 48 MD	29	4. 48 MD	29	3. 48 M	29	2. 48 M	29	1. 48 M
30	6. 47 MD	30	5. 41 MD	30	4. 47 MD	30	3. 47 M	30	2. 47 M
31	7. 12 MD	31	6. 12 MD	31	5. 12 MD	31	4. 12 MD	31	3. 12 M
32	7. 24 MD	32	6. 24 MD	32	5. 24 MD	32	2. 24 MD	32	3. 24 M

August.

A Table of the fixed Starres.

August, frō the first to the 15. | August, frō the 15. to the last. | Septēb. frō the first to the 15. | Septēb. frō the 15. to the last. | Octo. frō the first to the 15.

1	3. 20	M	1	2. 20	M	1	1. 20	M	1	12. 20	M	1	11. 20	E
2	3. 54	M	2	2. 54	M	2	1. 54	M	2	12. 54	M	2	11. 54	E
3	4. 28	M	3	3. 28	M	3	2. 28	M	3	1. 28	M	3	12. 28	M
4	3. 45	MD	4	3. 45	M	4	2. 45	M	4	1. 45	M	4	12. 45	M
5	6. 52	MD	5	5. 52	MD	5	4. 52	M	5	3. 52	M	5	2. 52	M
6	7. 23	MD	6	6. 23	MD	6	5. 23	M	6	4. 23	M	6	3. 23	M
7	7. 28	MD	7	6. 28	MD	7	5. 28	M	7	4. 28	M	7	3. 28	M
8	7. 50	MD	8	6. 50	MD	8	5. 50	MD	8	4. 50	M	8	3. 50	M
9	8. 12	MD	9	7. 12	MD	9	6. 12	MD	9	5. 12	M	9	4. 12	M
10	9. 4	MD	10	8. 4	MD	10	7. 4	MD	10	6. 4	MD	10	5. 4	M
11	10. 0	MD	11	9. 0	MD	11	8. 0	MD	11	7. 0	MD	11	6. 0	M
12	10. 4	MD	12	9. 4	MD	12	8. 4	MD	12	7. 4	MD	12	6. 4	M
13	12. 12	DA	13	11. 12	MD	13	10. 12	MD	13	9. 12	MD	13	8. 12	MD
14	12. 13	DA	14	11. 13	MD	14	10. 13	MD	14	9. 13	MD	14	8. 13	MD
15	1. 0	DA	15	12. 0		15	11. 0	MD	15	10. 0	MD	15	9. 0	MD
16	1. 42	DA	16	12. 42	DA	16	11. 42	MD	16	10. 42	MD	16	9. 42	MD
17	3. 2	DA	17	2. 2	DA	17	1. 2	DA	17	12. 2	DA	17	11. 2	MD
18	3. 19	DA	18	2. 19	DA	18	1. 19	DA	18	12. 19	DA	18	11. 19	MD
19	3. 51	DA	19	2. 51	DA	19	1. 51	DA	19	12. 51	DA	19	11. 51	MD
20	3. 56	DA	20	2. 56	DA	20	1. 56	DA	20	12. 56	DA	20	11. 56	MD
21	5. 16	DA	21	4. 16	DA	21	3. 16	DA	21	2. 16	DA	21	1. 16	DA
22	5. 33	DA	22	4. 33	DA	22	3. 33	DA	22	2. 33	DA	22	1. 33	DA
23	6. 54	DA	23	5. 54	DA	23	4. 54	DA	23	3. 54	DA	23	2. 54	DA
24	7. 14	DA	24	6. 14	DA	24	5. 14	DA	24	4. 14	DA	24	3. 14	DA
25	7. 41	DA	25	6. 41	DA	25	5. 41	DA	25	4. 41	DA	25	3. 41	DA
26	10. 19	E	26	9. 19	E	26	8. 19	E	26	7. 19	E	26	6. 19	E
27	11. 12	E	27	10. 12	E	27	9. 12	E	27	8. 12	E	27	7. 12	E
28	11. 48	E	28	10. 48	E	28	9. 48	E	28	8. 48	E	28	7. 48	E
29	12. 48	M	29	11. 48	E	29	10. 48	E	29	9. 48	E	29	8. 48	E
30	1. 47	M	30	12. 47	E	30	11. 47	M	30	10. 47	E	30	9. 47	E
31	2. 12	M	31	1. 12	M	31	12. 12	M	31	11. 12	E	31	10. 12	E
32	2. 24	M	32	1. 24	M	32	12. 24	M	32	11. 24	E	32	10. 24	E

L.ii.

Octob.

A Table of the fixed Starres.

Octob. frō the 15. to the last. Nouēb. frō the first to the 15. Nouēb. frō the 15. to the last. Decēb. frō the first to the 15. Decēb. frō the 15. to the last.

1	10.20	E	1	2.20	E	1	8.20	E	1	7.20	E	1	6.20	E
2	14.54	E	2	9.54	E	2	8.54	E	2	7.54	E	2	6.54	E
3	11.28	E	3	10.28	E	3	9.28	E	3	8.28	E	3	7.28	E
4	11.45	E	4	10.45	E	4	9.45	E	4	8.45	E	4	7.45	E
5	1.52	M	5	12.52	M	5	11.52	E	5	10.52	E	5	9.52	E
6	2.23	M	6	1.23	M	6	12.23	M	6	11.23	E	6	10.23	E
7	2.28	M	7	1.28	M	7	12.28	M	7	11.28	E	7	10.28	E
8	2.50	M	8	1.50	M	8	12.50	M	8	11.50	E	8	10.50	E
9	3.12	M	9	2.12	M	9	1.12	M	9	12.12	M	9	11.12	E
10	4.4	M	10	3.4	M	10	2.4	M	10	1.4	M	10	12.4	M
11	5.0	M	11	4.0	M	11	3.0	M	11	2.0	M	11	1.0	M
12	5.4	M	12	4.4	M	12	3.4	M	12	2.4	M	12	1.4	M
13	7.12	MD	13	6.12	M	13	5.12	M	13	4.12	M	13	3.12	M
14	7.13	MD	14	6.13	M	14	5.13	M	14	4.13	M	14	3.13	M
15	8.0	MD	15	7.0	M	15	6.0	M	15	5.0	M	15	4.0	M
16	8.42	DM	16	7.42	MD	16	6.42	M	16	5.42	M	16	4.42	M
17	10.2	MD	17	9.2	MD	17	8.2	MD	17	7.2	M	17	6.2	M
18	10.19	MD	18	9.19	MD	18	8.19	MD	18	7.19	M	18	6.19	M
19	10.51	MD	19	9.51	MD	19	8.51	MD	19	7.51	MD	19	6.51	M
20	10.56	MD	20	9.56	MD	20	8.56	MD	20	7.56	MD	20	6.56	M
21	12.16	DA	21	11.16	MD	21	10.16	MD	21	9.16	MD	21	8.16	MD
22	12.33	DA	22	11.33	MD	22	10.33	MD	22	9.33	MD	22	8.33	MD
23	1.54	DA	23	12.54	DA	23	11.54	MD	23	10.54	MD	23	9.54	AD
24	2.14	DA	24	1.14	DA	24	12.14	DA	24	11.14	MD	24	10.14	MD
25	2.41	DA	25	1.41	DA	25	12.41	DA	25	11.41	MD	25	10.41	MD
26	5.19	DA	26	4.19	DA	26	3.19	DA	26	2.19	DA	26	10.19	DA
27	6.12	E	27	5.12	E	27	4.12	E	27	3.12	DA	27	2.12	DA
28	6.48	E	28	5.48	E	28	4.48	E	28	3.48	DA	28	2.48	DA
29	7.48	E	29	6.48	E	29	5.48	E	29	4.48	E	29	3.48	DA
30	8.47	E	30	7.47	E	30	6.47	E	30	5.47	E	30	4.47	1E
31	9.12	E	31	8.12	E	31	7.12	E	31	6.12	E	31	5.12	2E
32	9.24	E	32	8.24	E	32	7.24	E	32	6.24	E	32	5.24	3E

NOW this Table serueth for euerie moneth in the
 yeare (being exadlie calculated) their time of their
 being South, or touching your Meridian, (or as some
 tearme it) Noonstead, seruing verie well the Seamen
 to take the height of them, with their Instruments by
 yon the Sea, referring it vnto the Table of Declination
 that goeth before: The first is the houres, the second the
 minutes, the third be the letters that shew you whether
 they be South by day or by night, in the evening or in the
 morning, in the forenone or afternone, of the which the Let-
 ter E. doth signifie evening, the Letter M. signifie the mo-
 ning, the letters DM, signifie the day in the morning, and
 the letter DA. signifie the day in the after none (as I haide
 before) the verie houre and minute being South. Now
 you see that I haue put to their being South in y^e daie, as
 wel as in the night, to the intent to know the houre of y^e
 night, as well by their setting, as also by your Cumpasse,
 by bringing your 32. points into 24. houres: And in like
 manner (as W. Bourne hath shewed in the 4. Chapter of
 his Regiment for the Sea) by shining of the Moone to di-
 uide the shining into equall partes, then those partes be-
 ing equallie diuided with the houre and minutes, & the
 time before their being South, put together the halfe that
 shineth, and that sheweth the iust rising of the starres: and
 the other time of their shining after the height being
 South, sheweth their setting: Now you, seeing the Table
 runneth from the first side of euerie moneth to the 15. from
 the 15. to the last daie, must consider (if you will know the
 exact time betwene the first daie and the 15. daie, and be-
 twixt the 15. daie and the last) to doe this, looke howe
 manie dayes of the moneth is past, either from the first
 daie or 15. daie, and pull foure minutes from that num-
 ber: for so many dayes as is past, for euerie daie that
 shall shew you the true time of their being South, that
 knowne, you shall do (as is aforesaid) for their rising and
 setting.

The signification of the letters in the Table

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A Table of the true place of the Sunne.

Months	Januarie.	Februarie.	March.	Aprill.	Maie.	June.
Signs	Capricorne	Aquarius	Pisces.	Aries.	Taurus.	Gemini.
Dates	G	M	G	M	G	M
1	20	22	21	53	20	55
2	21	24	22	54	21	55
3	22	25	23	54	22	54
4	23	26	24	55	23	54
5	24	27	25	55	24	53
6	25	28	26	56	25	53
7	26	30	27	56	26	52
8	27	31	28	56	27	52
9	28	32	29	57	28	51
10	29	33	☉	57	29	50
11	☉	35	1	57	☉	49
12	1	36	2	58	1	48
13	2	37	3	58	2	47
14	3	38	4	58	3	46
15	4	39	5	58	4	45
16	5	40	6	58	5	44
17	6	41	7	58	6	43
18	7	42	8	58	7	42
19	8	43	9	58	8	41
20	9	44	10	58	9	39
21	10	45	11	58	10	38
22	11	46	12	58	11	37
23	12	47	13	57	12	36
24	13	48	14	57	13	34
25	14	48	15	57	14	33
26	15	49	16	56	15	32
27	16	50	17	56	16	30
28	17	51	18	56	17	29
29	18	51	19	56	18	28
30	19	52			19	27
31	20	52			20	25

A Table of the true place of the Sunne.

Months	Julie.	August.	Septēber	October.	Nouēber	Decēber
Signs	Cancer.	Leo.	Virgo.	Libra.	Scorpio.	Sagittar.
Dates	G	M	G	M	G	M
1	18	26	18	2	18	4
2	19	23	19	0	19	2
3	20	20	19	58	20	1
4	21	17	20	55	21	0
5	22	14	21	53	21	58
6	23	11	22	51	22	57
7	24	8	23	48	23	56
8	25	5	24	46	24	55
9	26	2	25	44	25	54
10	27	0	26	42	26	53
11	27	57	27	40	27	52
12	28	54	28	38	28	51
13	29	51	29	36	29	50
14	⊙	48	⊙	34	⊙	49
15	1	46	1	32	1	48
16	2	43	2	30	2	47
17	3	40	3	28	3	46
18	4	38	4	26	4	45
19	5	35	5	24	5	45
20	6	32	6	22	6	44
21	7	30	7	21	7	44
22	8	27	8	19	8	43
23	9	25	9	17	9	42
24	10	22	10	16	10	42
25	11	20	11	14	11	41
26	12	17	12	13	12	41
27	13	15	13	11	13	41
28	14	12	14	10	14	40
29	15	10	15	8	15	40
30	16	7	16	7	16	39
31	17	5	17	5	17	39

The Table of the Equation of the Sunne.

The yeres of the equatio, the yeres the equa, the yeres the equa, the yeres the equa, the yeres the equa
our Lord, to be added, of &c. tion, &c. of, &c. tion, &c. of, &c. tion, &c.

	G	M		G	M		G	M		G	M
1545	Ri.	0	1581	I	16	1617	I	32	1653	I	48
1546		45	1582	I	1	1618	I	17	1654	I	33
1547		30	1583	I	46	1619	I	2	1655	I	18
1548		15	1584	I	32	1620		47	1656	I	3
1549	I	2	1585	I	18	1621	I	33	1657	I	49
1550		47	1586	I	3	1622	I	18	1658	I	34
1551		32	1587		48	1623	I	3	1659	I	19
1552		18	1588		33	1624		49	1660	I	4
1553	I	4	1589	I	19	1625	I	35	1661	I	51
1554		49	1590	I	4	1626	I	20	1662	I	36
1555		34	1591		49	1627	I	25	1663	I	21
1556		19	1592		35	1628		51	1664	I	7
1557	I	5	1593	I	21	1629	I	37	1665	I	53
1558		50	1594	I	6	1630	I	22	1666	I	38
1559		35	1595		51	1631	I	7	1667	I	23
1560		21	1596		37	1632		53	1668	I	9
1561	I	7	1597	I	23	1633	I	38	1669	I	55
1562		52	1598	I	8	1634	I	23	1670	I	40
1563		37	1599		53	1635	I	8	1671	I	25
1564		23	1600		39	1636		54	1672	I	10
1565	I	9	1601	I	25	1637	I	40	1673	I	56
1566		54	1602	I	10	1638	I	5	1674	I	41
1567		39	1603		55	1639	I	10	1675	I	26
1568		25	1604		40	1640		56	1676	I	12
1569	I	11	1605	I	26	1641	I	42	1677	I	58
1570		56	1606	I	11	1642	I	27	1678	I	33
1571		41	1607		56	1643	I	12	1679	I	28
1572		26	1608		32	1644		8	1680	I	13
1573	I	12	1609	I	28	1645	I	44	1681	R2.	0
1574		57	1610	I	13	1646	I	29	1682	I	45
1575		42	1611		58	1647	I	14	1683	I	30
1576		28	1612		44	1648	I	0	1684	I	15
1577	I	14	1613	I	30	1649	I	46	1685	I	2
1578		99	1614	I	15	1650	I	31	1686	I	4
1579		44	1615	I	10	1651	I	16	1687	2	32
1580		29	1616		46	1652	I	2	1688	I	8

**This Table of the Equation of the Sunne, serueth
from the yeare of 1545. where it hath his roote or begin-
ning, untill 1680. and in the yeare of 1681. it shall re-
turne to the roote, adding therevnto one degré moze. As
fo; example: In the yeare of 1681. adde one degré vppon
the other degré that the roote hath, and so shall the yeere
of 1681. haue two degrés of Equation, and the
yeere of 1682. shall haue one degré and 45. minutes,
which is to adde one degré vppon 45. minutes, that
had the yeare of 1546. &c. And hauing passed
ouer 136. yeares, you shall returne
to the roote, adding 2. degrés.**

The Table of the Operation of the Interest
 from the year of 1747. Interest is paid the first of
 every year till 1750. and in the year of 1751. the
 interest is the rate adding thereto one penny more. The
 for example: In the year of 1751. suppose one penny upon
 the other 6. and that the rate half, and so shall the year
 of 1752. have the rate of Operation, and the
 year of 1753. shall have one penny and 4. hundredths,
 which is to add one penny upon 4. hundredths, that
 for the year of 1754. shall have one penny
 and 8. hundredths, and so shall continue
 to the rate, adding 2. hundredths.

1747	6	0	0	0
1748	6	0	0	0
1749	6	0	0	0
1750	6	0	0	0
1751	6	0	0	0
1752	6	0	0	0
1753	6	0	0	0
1754	6	0	0	0
1755	6	0	0	0
1756	6	0	0	0
1757	6	0	0	0
1758	6	0	0	0
1759	6	0	0	0
1760	6	0	0	0
1761	6	0	0	0
1762	6	0	0	0
1763	6	0	0	0
1764	6	0	0	0
1765	6	0	0	0
1766	6	0	0	0
1767	6	0	0	0
1768	6	0	0	0
1769	6	0	0	0
1770	6	0	0	0
1771	6	0	0	0
1772	6	0	0	0
1773	6	0	0	0
1774	6	0	0	0
1775	6	0	0	0
1776	6	0	0	0
1777	6	0	0	0
1778	6	0	0	0
1779	6	0	0	0
1780	6	0	0	0
1781	6	0	0	0
1782	6	0	0	0
1783	6	0	0	0
1784	6	0	0	0
1785	6	0	0	0
1786	6	0	0	0
1787	6	0	0	0
1788	6	0	0	0
1789	6	0	0	0
1790	6	0	0	0
1791	6	0	0	0
1792	6	0	0	0
1793	6	0	0	0
1794	6	0	0	0
1795	6	0	0	0
1796	6	0	0	0
1797	6	0	0	0
1798	6	0	0	0
1799	6	0	0	0
1800	6	0	0	0

Signes.	♈	♉	♊	♋	♌	♍	Signes.
G	G	M	G	M	G	M	G
0	0		II	30	20	12	30
1	0	24	II	51	20	25	29
2	0	48	12	12	20	37	28
3	I	12	12	33	20	49	27
4	I	46	12	53	21	0	26
5	2	0	13	13	21	11	25
6	2	23	13	33	21	22	24
7	2	47	13	53	21	32	23
8	3	11	14	13	21	42	22
9	3	35	14	32	21	51	21
10	3	58	14	51	22	0	20
11	4	22	15	10	22	9	19
12	4	45	15	28	22	17	18
13	5	9	15	47	22	25	17
14	5	32	16	5	22	32	16
15	5	55	16	23	22	39	15
16	6	19	16	40	22	46	14
17	6	42	16	57	22	52	13
18	7	5	17	14	23	57	12
19	7	28	17	31	23	3	11
20	7	50	17	47	23	8	10
21	8	13	18	3	23	12	9
22	8	35	18	19	23	15	8
23	8	58	18	34	23	19	7
24	9	20	18	49	23	22	6
25	9	42	19	4	23	24	5
26	10	4	19	18	23	26	4
27	10	26	19	32	23	28	3
28	10	47	19	46	23	29	2
29	II	9	19	59	23	30	1
30	II	30	20	12	23	30	0
Signes.	♈	♉	♊	♋	♌	♍	Signes.

The Chapter of the Declination of the Sunne.



The Declination of the Sunne, is the arke of the greater circle, which passeth by the Poles of the world, included betwene the Equinodiall and the Zodiacke. And here is to bee noted, that whatsoever foure pointes or prickes which are equal-
lie distant from the points of the Equinox (which are the beginning of Aries and Libra) shall haue equall declina-
tions.

Whereof it followeth, that the foure quarters of the Zodiacke haue equall declinations. And to auoide prolixitie, I haue added herevnto a Table of the declinations of onelie one quarter of the Zodiacke, so that all hauing one selfe same manner of Declinations, it may serue for all, and the order of it is this. The signes whose Declination increaseth, are in the head or front of the Table, and the degrees of these signes descend by the left side thereof, and the signes whose declination decreaseth, are in the foot of the Table, and the degrees of these signes, rise by the right side of the same. The disposition of the Table being vnderstood, then to knowe what declination the Sunne hath in euerie degree of the Zodiacke, you ought to knowe the true place of the Sunne, for the daie of the declination which you desire to knowe, and the signe which the Sun shall be found in that daie, shall you seeke in the front or foote of the Table. And if it be in the front, you shall seeke the number of the degrees on the left side, and if it shall be at the foote of the Table, you shall seeke it on the right side. Then aboue or vnder the signe, in the front of that degree of the said signe, you shall finde two numbes, whereof the first is of degrees, and the second of minutes: and those degrees and minutes of Declination the Sunne hath that daie. And this is vnderstood without hauing respect to the
odde

odde minutes aboue the degré, which the true place of the
Sunne hath.

And if you desire to verifie this more preciselie, note the
declination of that degré, and of the degré following :
and take the lesse from the more , and that which remaineth,
shall be the difference of the declination from the one
degré to the other, of which difference ye shall take a part
proportionallie, as are the minutes of the place of the Sun
vnto 60. And this part of minutes must be added to the
fiest declination of it, and be lesse then the second, or must
be taken from it if it shall be greater, and then that riseth
thereof shall be the precise declination for that signe, de-
gré, and minute. As for example. In the yeare 1546. the
tenth daie of September, the Sunne shall be in 26. G. 38.
M. of Virgo, & the 26. G. precise , shall correspond 1. G. 36.
M. of declination. And to verifie the declination that com-
meth to 38. minutes, which is more of the 26. G. you must
marke the difference that is from the declination of 26. G.
(which is one G. 36. M.) to the declination of the 27. G.
which is one G. 12. M. The difference is 24. M. Of these you
must take such part proportionallie, as the 38. minutes
beareth vnto 60. which are almost two terces of a degré:
Then the two terces of 24. are 16. which must be taken
from one degré 36. minutes, which correspond to the 26.
G. of Virgo, because the Declinations goe decreasing, and
remaineth 1. G. 20. M. and if the declinations increase, you
must adde thereto , as you take awaie when they de-
creas.

Another example for this yeere of 1561.

Example for the yeere 1561. the 20. of Aprill, I finde the
true place of the Sunne at noone, in 9. degrés 54. minutes
of Taurus: then in the Table of η signes befoze, I seeke for
9. degrés of Taurus, to which doth answere for the decli-
nation 14. degrés 32. minutes , and to the next degré fol-
lowing, doth answere 14. degrés 51. minutes, then take

¶.iii:

the

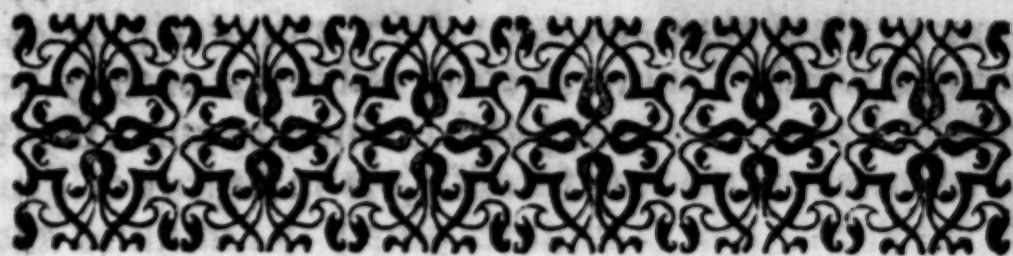
the lesser out of the more, so resteth 19. minutes. Then
 forme a rule of three, and saie : if 60. minutes giue 54.
 minutes (which 54. minutes doeth rest before of the 9. de-
 grees of Taurus) how many doth 19. minutes giue, which
 19. minutes are the diuersitie of 9. & 10. degrees of Tau-
 rus. So I finde that 14. minutes giueth 17. minutes and
 6. seconds, which 17. minutes and 6. seconds, I adde to the
 14. degrees 23. minutes, which answereth to the 9. degrees
 of Taurus. And it commeth to 14. degrees 49. minutes, &
 6. seconds, which is the true declination of the 20. date of
 Aprill. Anno. 1561.

It is also to bee noted, that I adde these 17. minutes &
 6. seconds, because the declination doth increase : for if it
 decreased, it were to be taken out so much, and the rest
 is the declination. So is the declination for the
 twentieth of Aprill, in the yeere 1561.

fourteene degrees 49. minutes
 and six seconds.

FINIS.





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